

U.S. PTO  
09/16/02  
651052

# UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.

196877US2

First Inventor or Application Identifier

Hitoshi FUJIWARA, et al.

Title

PRODUCTION MANAGEMENT SYSTEM, CLIENT IN THE PRODUCTION MANAGEMENT SYSTEM, PRODUCTION MANAGEMENT METHOD IN THE PRODUCTION MANAGEMENT SYSTEM, DATA RETRIEVAL METHOD IN THE PRODUCTION MANAGEMENT SYSTEM, AND COMPUTER PRODUCT

## APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents

1. ☒ Fee Transmittal Form (e.g. PTO/SB/17)  
(Submit an original and a duplicate for fee processing)
2. ☒ Specification Total Pages **203**
3. ☒ Drawing(s) (35 U.S.C. 113) Total Sheets **123 (Formals)**
4. ☐ Oath or Declaration Total Pages
- a. ☐ Newly executed (original or copy)
- b. ☐ Copy from a prior application (37 C.F.R. §1.63(d))  
(for continuation/divisional with box 15 completed)
- i. ☐ **DELETION OF INVENTOR(S)**  
Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §1.63(d)(2) and 1.33(b).
5. ☐ Incorporation By Reference (usable if box 4B is checked)  
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4B, is considered to be part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

ADDRESS TO: Assistant Commissioner for Patents  
Box Patent Application  
Washington, DC 20231

## ACCOMPANYING APPLICATION PARTS

6. ☐ Assignment Papers (cover sheet & document(s))
7. ☐ 37 C.F.R. §3.73(b) Statement (when there is an assignee) ☐ Power of Attorney
8. ☐ English Translation Document (if applicable)
9. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
10. ☐ Preliminary Amendment
11. ☒ White Advance Serial No. Postcard
12. ☐ Small Entity Statement(s) ☐ Statement filed in prior application. Status still proper and desired.
13. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)
14. ☒ Other: Notice of Priority, List of Inventors' Names and Addresses

15. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below:

- ☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application no.:  
Prior application information: Examiner: Group Art Unit:

16. Amend the specification by inserting before the first line the sentence:

- ☐ This application is a ☐ Continuation ☐ Division ☐ Continuation-in-part (CIP) of application Serial No. Filed on

☐ This application claims priority of provisional application Serial No. Filed

## 17. CORRESPONDENCE ADDRESS



**22850**

(703) 413-3000

FACSIMILE: (703) 413-2220

Name:	Marvin J. Spivak	Registration No.:	24,913
Signature:	<i>Marvin J. Spivak</i>	Date:	9/11/02
Name:	C. Irvin McClelland	Registration No.:	24,913

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTOR(S) Hitoshi FUJIWARA, et al.

SERIAL NO: New Application

FILING DATE: Herewith

FOR: PRODUCTION MANAGEMENT SYSTEM, CLIENT IN THE PRODUCTION MANAGEMENT SYSTEM,  
 PRODUCTION MANAGEMENT METHOD IN THE PRODUCTION MANAGEMENT SYSTEM, DATA  
 RETRIEVAL METHOD IN THE PRODUCTION MANAGEMENT SYSTEM, AND COMPUTER  
 PRODUCT

## FEE TRANSMITTAL

ASSISTANT COMMISSIONER FOR PATENTS  
 WASHINGTON, D.C. 20231

FOR	NUMBER FILED	NUMBER EXTRA	RATE	CALCULATIONS
TOTAL CLAIMS	90 - 20 =	70	× \$18 =	\$1,260.00
INDEPENDENT CLAIMS	13 - 3 =	10	× \$78 =	\$780.00
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIMS (If applicable)			+ \$260 =	\$0.00
<input checked="" type="checkbox"/> LATE FILING OF DECLARATION			+ \$130 =	\$130.00
BASIC FEE				\$690.00
TOTAL OF ABOVE CALCULATIONS				\$2,860.00
<input type="checkbox"/> REDUCTION BY 50% FOR FILING BY SMALL ENTITY				\$0.00
<input type="checkbox"/> FILING IN NON-ENGLISH LANGUAGE			+ \$130 =	\$0.00
<input type="checkbox"/> RECORDATION OF ASSIGNMENT			+ \$40 =	\$0.00
TOTAL				\$2,860.00

- ☐ Please charge Deposit Account No. 15-0030 in the amount of A duplicate copy of this sheet is enclosed.
- ☒ A check in the amount of \$2,860.00 to cover the filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge any additional fees which may be required for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to Deposit Account No. 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully Submitted,

OBLON, SPIVAK, McCLELLAND,  
 MAIER & NEUSTADT, P.C.

Marvin J. Spivak  
 Registration No. 24,913

C. Irvin McClelland  
 Registration Number 21,124



22850

Tel. (703) 413-3000  
 Fax. (703) 413-2220  
 (OSMMN 11/98)

PRODUCTION MANAGEMENT SYSTEM, CLIENT IN THE PRODUCTION  
MANAGEMENT SYSTEM, PRODUCTION MANAGEMENT METHOD IN THE  
PRODUCTION MANAGEMENT SYSTEM, DATA RETRIEVAL METHOD IN THE  
PRODUCTION MANAGEMENT SYSTEM, AND COMPUTER PRODUCT

5

#### FIELD OF THE INVENTION

The present invention relates to a production management  
system, a client in the production management system,  
production management method in the production management  
10 system, a data retrieval method in the production management  
system, and a computer-readable recording medium which  
programs for executing the methods are stored in.

#### BACKGROUND OF THE INVENTION

15 Conventionally, the manufacturing history of a  
production line product is managed by using documents.  
Therefore, the documents must be retrieved when considering  
irregularities in the product. Specifically, the documents  
mainly comprise production flowcharts and operation charts  
20 written by the operators of each step. The flowcharts are  
circulated for each lot and record the names of the steps  
described therein. When the steps end, the name of the  
operator who supervised the step, the materials used, the  
numbers of satisfactory and defective products and the like  
25 are recorded manually.

The operation charts contain manually recorded data such as which lot was supervised in that step, the materials used and the number of satisfactory products, as in the flowchart. Various types of totals are calculated from these documents.

5 The operators create daily, weekly and monthly records and the like, and obtain the results and quality data from these documents. In other words, data recorded by the operators is transcribed and totalled.

When there are a great number of irregularities, the  
10 cause is searched for in these documents. When a step which appears to be causing a problem is discovered in the quality data total, the operation charts are checked. For example, when a problem is found in the material after studying the operation charts, the material chart is checked. When  
15 considering in a group, copies of the documents are distributed.

However, in a method for managing manufacturing history by using on documents such as that described above, time is required to create and consider the documents. Consequently,  
20 the method has disadvantages of poor efficiency and lack of speediness.

#### SUMMARY OF THE INVENTION

It is the object of the present invention to provide  
25 a production management system which is capable of efficiently



and speedily managing products manufactured on a production and assembly line, a client in the production management system, production management method in the production management system, a data retrieval method in the production management system, and a computer-readable recording medium which programs for executing the methods are stored in.

In the production management system according to one aspect of the present invention, a plurality of clients in a first client group input data related production and assembly in each of a plurality of steps of producing and assembling components, units and main bodies. A plurality of clients in a second client group input data related to electrical check, image check, completion check, repair step, and product check. A server stores the input data from the clients in the first client group in a database. A plurality of clients in a third client group specify retrieval conditions and send retrieval requests to the server. In response, the server retrieves the data from the database and transmits it to the clients in the third client group. The clients in the third client group chronologically process and output (display or print) the received retrieved data based on a predetermined output target. Therefore, products which are manufactured on an assembly line can be managed effectively and rapidly. Furthermore, since the retrieved data are processed chronologically in accordance with a predetermined output target, the data can

be managed in each time band.

Further, the clients in the third client group output the chronologically processed data in a display and graph format by using monitoring and the like. Therefore, the  
5 manufacturing assembly line can be managed chronologically.

Furthermore, the clients in the third client group create quality information for individual quality results, processes, defective items and responsible sectors by using monitoring and the like. This makes it possible to determine  
10 quality information for individual quality results, processes, defective items and responsible sectors.

Furthermore, when a created quality information has exceeded an action reference, the clients in the third client group send a warning to the responsible sector of the quality  
15 information, or to the assembly step relating to the quality information. Therefore, the relevant division can learn of problems and implement countermeasures speedily.

In the production management system according to another aspect of the present invention, a plurality of clients in  
20 a first client group transmit machine type codes and installation serial numbers appended to the pieces to be assembled, and data such as quality data and check table data, to a step-monitoring server. The step-monitoring server stores the data input from the clients in the first client  
25 group in the corresponding tables (for example, in-processing

defect content data table, check table data table, main data  
table). The clients in the first client group specify machine  
type code and dates, and retrieve data which matches the  
specified conditions from the corresponding tables stored in  
5 the step-monitoring server, and chronologically process and  
display the retrieved data on the screen in accordance with  
the output items stipulated in the selected output categories.  
Therefore, products which are manufactured on a production  
and assembly line can be efficiently and speedily managed.  
10 Further, since the retrieved data is chronologically  
processed for output items stipulated by set output targets,  
the products can be managed in each time band.

Other objects and features of this invention will become  
apparent from the following description with reference to the  
15 accompanying drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a diagram showing an example of a schematic  
constitution of a production management system according to  
20 a first embodiment;

Fig. 2 is a diagram showing a schematic constitution  
of an application system of the production management system  
of Fig. 1;

Fig. 3 is a block diagram showing the constitution of  
25 a schematic constitution of a client of the input system of

Fig. 1;

Fig. 4 is a block diagram showing the schematic constitution of the server of Fig. 1;

Fig. 5 is a block diagram showing the schematic constitution of a client of the output system of Fig. 1;

Fig. 6 is a flowchart schematically showing the entire operation of the production management system of Fig. 1;

Fig. 7 is a flowchart showing data input in an installation serial number storage step;

Fig. 8 is a diagram showing a display screen in an installation serial number storage step;

Fig. 9 is a diagram showing a display screen in an installation serial number storage step;

Fig. 10 is a diagram showing a display screen in an installation serial number storage step;

Fig. 11 is a flowchart showing data input in a check step;

Fig. 12 is a diagram showing a display screen in the check step;

Fig. 13 is a diagram showing a display screen in the check step;

Fig. 14 is a diagram showing a display screen in the check step;

Fig. 15 is a flowchart schematically showing the entire operation of the output system client of Fig. 1;

Fig. 16 is a diagram showing an initial screen of the output system client;

Fig. 17 is a flowchart showing in detail a reoccurrence prevention input process of Fig. 15;

5        Fig. 18 is a diagram showing a display screen of the reoccurrence prevention input process;

Fig. 19 is a diagram showing a display screen of the reoccurrence prevention input process;

10       Fig. 20 is a diagram showing a display screen of the reoccurrence prevention input process;

Fig. 21 is a diagram showing a display screen of the reoccurrence prevention input process;

Fig. 22 is a flowchart showing in detail a monitoring process of Fig. 15;

15       Fig. 23 is a diagram showing a display screen of the monitoring process;

Fig. 24 is a diagram showing a display screen of the monitoring process;

20       Fig. 25 is a diagram showing a display screen of the monitoring process;

Fig. 26A to Fig. 26F are diagrams showing a display screen of the monitoring process;

Fig. 27 is a flowchart showing a quality information process;

25       Fig. 28 is a diagram showing a display screen of the

quality information process;

Fig. 29 is a diagram showing a display screen of the quality information process;

Fig. 30 is a diagram showing a display screen of the  
5 quality information process;

Fig. 31A to Fig. 31F are diagrams showing a display screen of the quality information process;

Fig. 32 is a flowchart showing a characteristic value monitoring process;

10 Fig. 33 is a diagram showing a display screen of the characteristic value management process;

Fig. 34 is a diagram showing a display screen of the characteristic value management process;

Fig. 35 is a diagram showing a display screen of the  
15 characteristic value management process;

Fig. 36 is a flowchart showing a reoccurrence progress management process;

Fig. 37 is a diagram showing a display screen of the reoccurrence progress management process;

20 Fig. 38 is a diagram showing a display screen of the reoccurrence progress management process;

Fig. 39 is a diagram showing a display screen of the reoccurrence progress management process;

Fig. 40 is a diagram showing a schematic constitution  
25 of a production management system according to a second

embodiment;

Fig. 41 is a flowchart showing the basic operation of an input system (assembly step);

Fig. 42 is a flowchart showing the basic operation of an input system (assembly step);

Fig. 43 is a flowchart showing the basic operation of an output system;

Fig. 44 is a flowchart showing the basic operation of a management system;

Fig. 45 is a block diagram showing the schematic constitution of the input system and output system clients of Fig. 40;

Fig. 46 is a block diagram showing the schematic constitution of the step-monitoring server of Fig. 40;

Fig. 47 is a diagram showing a master table stored in a first database of Fig. 46;

Fig. 48 is a diagram showing a master table stored in a second database of Fig. 46;

Fig. 49 is a diagram showing an example of the format of a machine type code name master table of Fig. 47;

Fig. 50 is a diagram showing an example of the format of the factory name master table of Fig. 47;

Fig. 51 is a diagram showing an example of the format of the product field master table of Fig. 47;

Fig. 52 is a diagram showing an example of the format





Fig. 64 is a diagram showing an example of the format of the check table item master table of Fig. 47;

Fig. 65 is a diagram showing an example of the format of the unit name master table of Fig. 47;

5 Fig. 66 is a diagram showing an example of the format of the name of machine type master table of Fig. 47;

Fig. 67 is a diagram showing an example of the format of the alarm management master table of Fig. 47;

10 Fig. 68 is a diagram showing an example of the format of the alarm value master table of Fig. 47;

Fig. 69 is a diagram showing an example of the format of the defect content master table of Fig. 47;

Fig. 70 is a diagram showing an example of the format of the unit check table item master table of Fig. 47;

15 Fig. 71 is a diagram showing an example of the format of the check table data table of Fig. 48;

Fig. 72 is a diagram showing an example of the format of the check table revision history data table of Fig. 48;

20 Fig. 73 is a diagram showing an example of the format of the unit management No. data table of Fig. 48;

Fig. 74 is a diagram showing an example of the format of the main data table of Fig. 48;

Fig. 75 is a diagram showing an example of the format of the in-processing defect table of Fig. 48;

25 Fig. 76 is a diagram showing an example of the format

of the out-of-processing table of Fig. 48;

Fig. 77 is a diagram showing an example of the format of the unit main data table of Fig. 48;

Fig. 78 is a diagram showing an example of the format  
5 of the unit check table data table of Fig. 48;

Fig. 79 is a diagram showing an example of the format of the unit data table of Fig. 48;

Fig. 80 is a diagram showing a schematic constitution of the management system client of Fig. 40;

10 Fig. 81 is a flowchart showing an in-processing data input process of an input system client;

Fig. 82 is a flowchart showing an in-processing data input process of an input system client;

Fig. 83 is a flowchart showing an in-processing data  
15 input process of an input system client;

Fig. 84 is a flowchart showing an in-processing data input process of an input system client;

Fig. 85 is a diagram showing an example of a screen display in an in-processing data input process;

20 Fig. 86 is a diagram showing an example of a screen display in an in-processing data input process;

Fig. 87 is a diagram showing an example of a screen display in an in-processing data input process;

Fig. 88 is a diagram showing an example of a screen  
25 display in an in-processing data input process;

Fig. 89 is a diagram showing an example of a screen display in an in-processing data input process;

Fig. 90 is a diagram showing an example of a screen display in an in-processing data input process;

5 Fig. 91 is a diagram showing an example of a screen display in an in-processing data input process;

Fig. 92 is a diagram showing an example of a screen display in an in-processing data input process;

Fig. 93 is a diagram showing an example of a screen display in an in-processing data input process;

Fig. 94 is a diagram showing an example of a screen display in an in-processing data input process;

Fig. 95 is a diagram showing an example of a screen display in an in-processing data input process;

15 Fig. 96 is a diagram showing an example of a screen display in an in-processing data input process;

Fig. 97 is a diagram showing an example of a screen display in an in-processing data input process;

Fig. 98 is a diagram showing an example of a screen display in an in-processing data input process;

Fig. 99 is a diagram showing an example of a screen display in an in-processing data input process;

Fig. 100 is a flowchart showing a step-monitoring/alarm process of an output system client;

25 Fig. 101 is a flowchart showing a step-monitoring/alarm

process of an output system client;

Fig. 102 is a flowchart showing a step-monitoring/alarm  
process of an output system client;

Fig. 103 is a flowchart showing a step-monitoring/alarm  
5 process of an output system client;

Fig. 104 is a flowchart showing a step-monitoring/alarm  
process of an output system client;

Fig. 105 is a flowchart showing a step-monitoring/alarm  
process of an output system client;

10 Fig. 106 is a flowchart showing a step-monitoring/alarm  
process of an output system client;

Fig. 107 is a flowchart showing a step-monitoring/alarm  
process of an output system client;

Fig. 108 is a flowchart showing a step-monitoring/alarm  
15 process of an output system client;

Fig. 109 is a flowchart showing a step-monitoring/alarm  
process of an output system client;

Fig. 110 is a flowchart showing a step-monitoring/alarm  
process of an output system client;

20 Fig. 111 is a flowchart showing a step-monitoring/alarm  
process of an output system client;

Fig. 112 is a flowchart showing a step-monitoring/alarm  
process of an output system client;

Fig. 113 is a flowchart showing a step-monitoring/alarm  
25 process of an output system client;

Fig. 114 is a flowchart showing a step-monitoring/alarm process of an output system client;

Fig. 115 is a flowchart showing a step-monitoring/alarm process of an output system client;

5 Fig. 116 is a flowchart showing a step-monitoring/alarm process of an output system client;

Fig. 117 is a flowchart showing a step-monitoring/alarm process of an output system client;

10 Fig. 118 is a flowchart showing a step-monitoring/alarm process of an output system client;

Fig. 119 is a flowchart showing a step-monitoring/alarm process of an output system client;

Fig. 120 is a flowchart showing a step-monitoring/alarm process of an output system client;

15 Fig. 121 is a flowchart showing a step-monitoring/alarm process of an output system client;

Fig. 122 is a flowchart showing a step-monitoring/alarm process of an output system client;

20 Fig. 123 is a flowchart showing an alarm mail transmission process of the management system client;

Fig. 124 is a flowchart showing an alarm mail transmission process of the management system client;

Fig. 125 is a flowchart showing an alarm mail transmission process of the management system client;

25 Fig. 126 is a flowchart showing an alarm mail

transmission process of the management system client;

Fig. 127 is a flowchart showing an alarm mail transmission process of the management system client;

Fig. 128 is a diagram showing an example of a display  
5 screen in the alarm mail transmission process;

Fig. 129 is a diagram showing an example of a display screen in the alarm mail transmission process;

Fig. 130 is a diagram showing an example of a display screen in the alarm mail transmission process;

10 Fig. 131 is a diagram showing an example of a display screen in the alarm mail transmission process;

Fig. 132 is a diagram showing an example of a display screen in the alarm mail transmission process;

Fig. 133 is a diagram showing an example of a display  
15 screen in the alarm mail transmission process;

Fig. 134 is a diagram showing an example of a display screen in the alarm mail transmission process; and

Fig. 135 is a diagram showing an example of a display screen in the alarm mail transmission process.

20

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

The terminology of this application and first and second preferred embodiments of the production management system, the client in the production management system, the production  
25 management method in the production management system, the

data retrieval method in the production management system, and the computer-readable recording medium which programs for executing the methods are stored in, will be explained below with reference the accompanying drawings.

5 Explanation of the Terminology Used in this Application

The terminology used in this application will be explained.

Machine type: product specification sector (domestic and export to all countries)

10 Serial number: management number of the production side

Type number: production serial number

Irregularity: an irregular state discovered in an item other than the test item

Matter: fact or facts to be transmitted as information

15 Non-reoccurrence: irregular state wherein an irregular state has arisen but has been confirmed during repair that it will not reoccur

Number of completed products: the number of completely assembled products

20 Number of straight-throughs: the number of completely assembled products which have absolutely no irregularities

Number of defects: the number of irregular states (defects) which are discovered during testing (checking) after assembly

Straight-through rate: number of straight-throughs/number of

25 completed products = value

Defective rating: number of defects/number of completed products = value

PQ value = number of irregular states other than in irregularity information, non-reoccurrence defects, in-

5 processing tests, and tests/number of products tested = value

Number of line rejects = number of products removed from the assembly line due to the discovery of an irregular state

Responsible sector: the division (component sector, assembly sector, technical sector, design sector) which the

10 cause/origin of an irregular state is located in. E.g. when

an irregular state occurs due to purchased components, the

"component sector" is responsible. When an irregular state occurs due to the assembly operation, the "assembly sector"

15 is responsible. When an irregular state occurs in the product

despite no problems in the assembly operation and having passed the specification test, the "technical sector" is responsible.

When an investigative analysis in the technical sector discovers that an irregular state has occurred in a product

due to an irregularity in the design, the "design sector" is  
20 responsible.

A first embodiment of the present invention will be explained here with reference to Fig. 1 to Fig. 39 in the

sequence "entire constitution of the production management system", "application constitution of the production

25 management system", "constitution of input system client",



"server constitution", "constitution of output system client", "summary of entire operations of the production management system", "data input processes", and "retrieval requests/output processing". In the following explanation, a production management system of an assembly line which manufactures color copying machines is described by way of example.

Fig. 1 is a diagram showing a schematic constitution of the production management system according to the first embodiment. In Fig. 1, reference numeral 100 represents a color copying machine manufacturing assembly line. The manufacturing assembly line 100 comprises an assembly I step 101, an assembly II step 102, ..., an assembly N step 103, an electrical check step 104, an image check step 105, and a completion check step 106. Reference numeral 110 represents a repair process and reference numeral 111 represents a product check step. These processes are performed outside the line.

Reference numerals 201 to 203 represent clients which input data of the assembly I step 101, the assembly II step 102, ..., and the assembly N step 103. An operator inputs data representing production and assembly contents for each component and unit to the clients 201 to 203. The clients 201 to 203 transfer the data to a server 300 which is explained later.

Reference numerals 204 to 206 represent clients for

inputting data of the electrical check step 104, the image check step 105, and the completion check step 106. An operator inputs data representing checks, confirmed contents and results for products assembled in the assembly steps 101 to 103 to the clients 204 to 206. The clients 204 to 206 transfer the data to a server 300 which is explained later.

Reference numeral 207 represents a client for inputting data of the repair step 110. The operator inputs data of the repair step 110 to the client 207. The client 207 transfers the data to the server 300 explained later.

Reference numeral 208 represents a client which checks the data input in the steps from the assembly I step 101 to the repair step 110. The clients 201 to 208 form the input-system. The manufacturing assembly line 100 here comprises a manufacturing assembly line for manufacturing color copying machines, but the present invention is not limited to this and can be applied in a manufacturing assembly line for components and units.

Reference numeral 300 represents a server 300 which manages the entire production management system. The server 300 holds the data which is transferred from the clients 201 to 208 in a database. In response to retrieval requests from clients 501 to 503 explained later, the server 300 retrieves the data from the database and transmits it to the clients 501 to 503. The server 300 forms a database system.

Reference numeral 401 represents a manufacturing and production check section, reference numeral 402 represents a component check section, and reference numeral 403 represents a manufacturing technical section. Reference numerals 501 to 503 represent clients of the manufacturing and production check section 401, the component check section 402, and the manufacturing technical section 403. The clients 501 to 503 output retrieval requests to the server 300 based on predetermined retrieval conditions, and process the retrieved data which the server 300 sends in response to the requests.

#### Application Constitution of the Production Management System

Fig. 2 is a diagram showing a schematic constitution of an application system of the production management system of Fig. 1. The applications of the input system (the clients 201 to 208) provide the functions of input, update, store, delete, select, guide, automatic input, pop-up, barcode processing, print preview, single-sheet input, and input leak prevention.

Production information (factory name, production field, machine type, production step, line no., process name, machine type code, installation serial number, head no., machine number, installation date, completion date, etc.) and irregular state information (occurrence date, occurrence time, occurrence step, defective item, defect content, lank,

responsible sector, cause of defect, repair contents, repair supervisor, countermeasure contents, countermeasure date, etc.) are input as input information of the input system (the clients 201 to 208). Other data comprising check table check data, check sheet check data, name of check employee, and pass/fail data, are also input. This input information is transferred to the database system (the server 300).

The database system (the server 300) comprises tables for managing the input information which is input from the input system. Specifically, for example, the database system comprises a production information table, an irregular state information table, a check table data table, a check sheet data table, a master data table, and an object/alarm management data table. The database system (the server 300) retrieves data from the database in accordance with retrieval requests from the output system (the clients 501 to 503) and outputs the data to the output system (the clients 501 to 503).

Output information of the output system (the clients 501 to 503) comprises quality management information (quality monitoring monitor, quality information management, characteristic value management, reoccurrence prevention progress management, etc.) and alarm information (quality object exceed alarm, multiple defect alarm, reoccurring defect alarm, deadline warning alarm, etc.). The output system (the clients 501 to 503) output retrieval requests to

the server 300 based on predetermined retrieval conditions, chronologically processes the retrieved data sent from the server 300 in accordance with the retrieval requests, and outputs the above output information.

#### 5 Constitution of Input System Client

Fig. 3 is a block diagram showing the schematic constitution of the clients 201 to 208 of the input system shown in Fig. 1. The clients 201 to 208 of the input system each have the same constitution. As shown in Fig. 3, the  
10 clients 201 to 208 comprise an input section 601, a display section 602, a communications section 603 which performs data communications, a CPU 604 which controls the entire apparatus, a RAM 605 used as the work area of the CPU 604, a recording medium access apparatus 606 which reads and writes data to/from  
15 a recording medium 607, and a recording medium 607 which stores programs and the like for operating the CPU 604.

The input section 601 comprises a keyboard having a cursor key, a number input key, various types of function keys and the like, a mouse, a barcode reader, and the like. The  
20 operator supplies a control command to the CPU 604 and inputs data by using the input section 601 as a user interface.

The display section 602 comprises a CRT, an LCD or the like, and displays data in accordance with display data input from the CPU 604. The communications section 603 connects to  
25 a network and exchanges data communications with the server

300 and other clients via this network.

The CPU 604 is a central processing unit which controls the entire apparatus in compliance with the programs stored in the recording medium 607. The CPU 604 is connected to the  
5 input section 601, the display section 602, the communications section 603, the RAM 605, and the recording medium access apparatus 606. The CPU 604 controls data communications, reading of application programs by accessing the memory, reading and writing various types of data, inputting data and  
10 commands, displaying, and the like.

The RAM 605 comprises a work memory which stored specified programs, input commands, input data, processing results and the like, and a display memory which temporarily stores display data displayed on a display screen of the  
15 display section 602.

The recording medium 607 stores various types of programs and data such as an OS program 607a which can be executed by the CPU 604 (e.g. WINDOWS 95 and WINDOWS NT) and application programs. Application programs include, for  
20 example, a program for production management system input 607b. The recording medium comprises, for example, an optical, magnetic or electrical recording medium such as a floppy disk, a hard disk, a CD-ROM, a DVD-ROM, an MO, and a PC card. The various types of programs are stored in the recording medium  
25 607 in a data format which the CPU 604 can read. The various

types of programs may be stored beforehand in the recording medium or downloaded via a communications line and stored in the recording medium.

#### Constitution of Server

5            Fig. 4 is a block diagram showing a schematic constitution of the server 300 shown in Fig. 1. As shown in Fig. 4, the server 300 comprises an input section 701 for inputting data, a display section 702, a communications section 703 which performs data communications, a CPU 704 which  
10 manages the entire production management system and controls the entire apparatus, a RAM 705 which is used as the work area of the CPU 704, a recording medium access apparatus 706 which reads and writes data to/from a recording medium 707, a  
15 recording medium 707 which stores programs and the like for operating the CPU 704, and a database for holding data sent from the clients.

The input section 701 comprises a keyboard having a cursor key, a number input key, various types of function keys and the like, a mouse, a barcode reader, and the like. The  
20 operator supplies a control command to the CPU 704 and inputs data by using the input section 701 as a user interface.

The display section 702 comprises a CRT, an LCD or the like, and displays data in accordance with display data input from the CPU 704. The communications section 703 connects to  
25 a network and exchanges data communications via the network

with the input system clients 201 to 208 and the output system clients 501 to 503.

The CPU 704 is a central processing unit which controls the entire apparatus in compliance with the programs stored  
5 in the recording medium 707. The CPU 704 is connected to the input section 701, the display section 702, the communications section 703, the RAM 705, the recording medium access apparatus 706, and the database 708. The CPU 704 controls data communications, reading of application programs by accessing  
10 the memory, reading and writing various types of data, inputting data and commands, displaying, and the like.

The RAM 705 comprises a work memory which stored specified programs, input commands, input data, processing results and the like, and a display memory which temporarily  
15 stores display data displayed on a display screen of the display section 702.

The recording medium 707 stores various types of programs and data such as an OS program 707a which can be executed by the CPU 704 (e.g. WINDOWS NT Server V4.0) and  
20 application programs. Application programs include, for example, a program for production management system input 707b. The recording medium comprises, for example, an optical, magnetic or electrical recording medium such as a floppy disk, a hard disk, a CD-ROM, a DVD-ROM, an MO, and a PC card. The  
25 various types of programs are stored in the recording medium



707 in a data format which the CPU 704 can read. The various types of programs may be stored beforehand in the recording medium or downloaded via a communications line and stored in the recording medium.

5           The database 708 comprises a production information table 708a, an irregular state information table 708b, a check table data table 708c, a check sheet data table 708d, a master data table 708e, and an object/alarm management data table 708f.

#### 10   Constitution of Output System Client

          Fig. 5 is a block diagram showing a schematic constitution of the clients 501 to 503 of the output system shown in Fig. 1. The clients 501 to 503 of the output system each have the same constitution. As shown in Fig. 5, the  
15   clients 501 to 503 comprise an input section 801, a display section 802, a communications section 803 which performs data communications, a CPU 804 which controls the entire apparatus, a RAM 805 used as the work area of the CPU 804, a recording medium access apparatus 806 which reads and writes data to/from  
20   a recording medium 807, and a recording medium 807 which stores programs and the like for operating the CPU 804.

          The input section 801 comprises a keyboard having a cursor key, a number input key, various types of function keys and the like, a mouse, a barcode reader, and the like. The  
25   operator supplies a control command to the CPU 804 and inputs

data by using the input section 801 as a user interface.

The display section 802 comprises a CRT, an LCD or the like, and displays data in accordance with display data input from the CPU 804. The communications section 803 connects to  
5 a network and exchanges data communications with the server 300 and other clients via this network.

The CPU 804 is a central processing unit which controls the entire apparatus in compliance with the programs stored in the recording medium 807. The CPU 804 is connected to the  
10 input section 801, the display section 802, the communications section 803, the RAM 805, the recording medium access apparatus 806, and a printing section 808. The CPU 804 controls data communications, reading of application programs by accessing the memory, reading and writing various types of data,  
15 inputting data and commands, displaying, and the like.

The RAM 805 comprises a work memory which stored specified programs, input commands, input data, processing results and the like, and a display memory which temporarily stores display data displayed on a display screen of the  
20 display section 802.

The recording medium 807 stores various types of programs and data such as an OS program 807a which can be executed by the CPU 804 (e.g. WINDOWS 95 and WINDOWS NT) and application programs. Application programs include, for  
25 example, a program for production management system input 807b.

The recording medium comprises, for example, an optical, magnetic or electrical recording medium such as a floppy disk, a hard disk, a CD-ROM, a DVD-ROM, an MO, and a PC card. The various types of programs are stored in the recording medium  
5 807 in a data format which the CPU 804 can read. The various types of programs may be stored beforehand in the recording medium or downloaded via a communications line and stored in the recording medium.

The printing section 808 for example comprises a laser  
10 printer which prints data displayed on the display section 802 onto paper in compliance with the CPU 804.

Subsequently, the operation of the production management system will be explained in detail according to the sequence "Summary of Entire Operation of the Production  
15 management system", "Data input Step", and "Retrieval request and output Step".

#### Summary of Entire Operation of the Production Management System

Fig. 6 is a flowchart showing a summary of the entire  
20 operations of the production management system shown in Fig. 1. In Fig. 6, data of an assembly I step 101, an assembly II step 102, ..., an assembly N step 103, an electrical check step 104, an image check step 105, a completion check step 106, a repair step 110, and a product check step 111 are input  
25 to the input system (clients 201 to 208) (step P100). The input

data are transferred to the database system (the server 300) (step P101).

The database system (the server 300) receives the data from the input system (clients 201 to 208) (step P200) and  
5 stores the data in the corresponding tables of the database 708 (step P201).

On the other hand, the retrieval conditions are input to the output system (clients 501 to 503) (step P300) and a retrieval request is transmitted to the database system  
10 (server 300) based on the input retrieval conditions (step P301). The server 300 receives the retrieval request from the output system (clients 501 to 503) (step P202), retrieves the data from the corresponding table of the database 708 in accordance with the retrieval request (step P203), and  
15 transmits the retrieved data to the output system (the clients 501 to 503) (step P204).

The output system (the clients 501 to 503) receives the retrieved data from the server 300 (step P302), chronologically processes the retrieved data in compliance  
20 with a predetermined output target and output it thereto (step P303). In this step, when the processed retrieved data exceeds a predetermined action reference value, a warning is transmitted to the relevant division (step P304). The action reference value relates to a PQ value, an IQ value, an identical  
25 defect item, a scattered defect occurrence, product check

defects, and the like.

#### Data Input Step

The steps of data input executed by the clients 201 to 206 of the input system will be explained in the sequence of

5 (1) installation serial number storage (inputting data to the clients 201 to 203 in the steps of assembly I 101 to assembly N 103), (2) checking (inputting data to the clients 204 to 206 in the steps of the electrical check 104, the image check 105, and the completion check 106).

10 (1) installation serial number storage

The step of installation serial number storage comprises inputting data to the clients 201 to 203 in the steps of assembly I 101 to assembly N 103. The step of installation serial number storage will be explained based on the flowchart

15 of Fig. 7 and with reference to Fig. 8 to Fig. 10.

Fig. 7 is a flowchart showing data input in the step of installation serial number storage, and Fig. 8 to Fig. 10 are diagrams showing screens displayed during installation serial number storage.

20 In Fig. 7, the operators of the steps of assembly I 101 to assembly N 103 firstly switch the power of the clients 201 to 203 to ON (step P400), then select and activate the program for production management system input 607b (step P401), whereby an initial screen such as that shown in Fig. 8 is

25 displayed (step P402). A subscreen 1001 for confirming and

changing today's date and the present time is displayed in a portion of the initial screen shown in Fig. 8.

The operators confirm today's date and the present time. When no change is needed, the operators press the "Enter" key; when the date and time need to be changed, the operator inputs the correct date and time and then press the "Enter" key (step P403). When today's date and the present time have been confirmed/changed, a subscreen 1002 for inputting the employee number and password is displayed (step P404). The operator inputs his employee number and password (step P405). Thereafter, a subscreen for in-processing data input is displayed as shown in Fig. 10 (step P406).

In the subscreen for in-processing data input shown in Fig. 10, reference numeral 1003 represents the factory, reference numeral 1004 represents the product field, reference numeral 1005 represents the machine type, reference numeral 1006 represents the production step, reference numeral 1007 represents the line No., reference numeral 1008 represents the step name, reference numeral 1009 represents the machine code, and reference numeral 1010 represents the input item of the installation serial number. Reference numeral 1011 represents an input guide box. Data items matching each of input items 1003 to 1009 are automatically displayed in the input guide box 1011.

As the installation which the operator is supervising

progresses, he inputs data to the input items 1003 to 1010 (step P407). Specifically, the operator selects a data item from among those displayed in the input guide box 1011 and clicks on it by using the mouse, whereby the selected data is automatically displayed in the boxes of the input items 1003 to 1009. The installation serial number 1010 is input by using the barcode reader to read the barcode showing the installation serial number which is pasted to the component or the unit which is to be installed.

10       The operator presses the store key 1020 to store the input data (step P408). The stored data is transferred to the server 300 (step P409) together with the date and present time data. The processes of steps P407 to P409 are performed until the operator issues a command to stop. The data of the  
15       installation serial number 1010 of each machine which is supplied to the line thereafter is stored with the serial number of that machine.

#### (2) Check Step Data Input

      The check step comprises inputting data to the clients  
20       204 to 206 in the steps of the electrical check 104, the image check 105, and the completion check 106. The check step will be explained based on the flowchart of Fig. 11 with reference to Fig. 8, Fig. 9, and Fig. 12 to Fig. 14. Fig. 11 is a flowchart showing data input in the check step, Fig. 8, Fig. 9 and Fig.  
25       12 to Fig. 14 are diagrams showing screens which are displayed

during the check step.

In Fig. 11, the operators of the electrical check 104, the image check 105, and the completion check 106 firstly switch the power of the clients 204 to 206 to ON (step P500), then select and activate the program for production management system input 607b (step P501), whereby an initial screen 1000 such as that shown in Fig. 8 is displayed (step P502). A subscreen 1001 for confirming and changing today's date and the present time is displayed in a portion of the initial screen shown in Fig. 8.

The operators confirm today's date and the present time. When no change is needed, the operators press the "Enter" key; when the date and time need to be changed, the operator inputs the correct date and time and then press the "Enter" key (step P503). When today's date and the present time have been confirmed/changed, a subscreen 1002 for inputting the employee number and password is displayed (step P504). The operator inputs his employee number and password (step P505). Thereafter, a subscreen for in-processing data input is displayed as shown in Fig. 12 (step P506).

In Fig. 12, reference numeral 1003 represents the factory, reference numeral 1004 represents the product field, reference numeral 1005 represents the machine type, reference numeral 1006 represents the production step, reference numeral 1007 represents the line No., reference numeral 1008



represents the step name, reference numeral 1009 represents the machine code, and reference numeral 1010 represents the input item of the installation serial number. Reference numeral 1011 represents an input guide box which data items  
5 matching each of input items 1003 to 1009 are automatically displayed in.

As the installation which the operator is supervising progresses, he inputs data to the input items of 1003 to 1009 (step P507). Specifically, the operator selects a data item  
10 from among those displayed in the input guide box 1011 and clicks on it by using the mouse, whereby the selected data is automatically displayed in the boxes of the input items 1003 to 1009.

To read the data of the installation serial number of  
15 the machine to be checked, the operator presses a "chain call" button 1021 (step P508), whereby the installation serial numbers of the machine which is presently passing along the line and the machines which have been rejected from the line are displayed in the list box 1022 (step P509).

When the operator selects a target installation serial  
20 number from those in the list box 1022 and clicks on it (step P510), the present quality data of that installation serial number is displayed on the screen as shown in Fig. 13 (step P511). The installation serial number and present quality  
25 data of the installation serial number which is displayed in

the list box 1022 is read from the server 300 and displayed.  
More specifically, as shown in Fig. 13, the data which have  
been input so far are displayed in the input items. In addition,  
the defective data (quality data) is displayed in the defective  
5 data input item box 1025. When there is no defective data,  
no defective data is displayed.

When there is a defective target installation serial  
number in the target step, the operator inputs the data  
relating to the defect to the defective data input item box  
10 1025 (step P512). When there is a defective target installation  
serial number in the target step, the operator inputs the data  
relating to the defect to this box. When the operator inputs  
"defective item", the data is automatically input to "date  
of occurrence", "time of occurrence", and "factory name". It  
15 is also possible to input the data relating to the defect in  
a single-sheet format. When the operator clicks on the number  
box in the defective data input item box 1025 of Fig. 13, the  
single-sheet input screen is displayed as shown in Fig. 14.

The operator presses the store key 1020 to store the  
20 input data relating to the defect (step P513). The stored data  
relating to the defect is sent to the server 300. The server  
300 receives the data relating to the defect (step P514) and  
stores the data in the corresponding tables of the database  
708 (step P515). The processes of the steps P510 to P514 are  
25 carried out until the operator issues a command to end (step

P515).

#### Retrieval Request/Output Step

The steps of retrieval request and output performed by the clients 501 to 503 will be explained with reference to  
5 Fig. 15 to Fig. 39. In these steps of retrieval request and output, in the manufacturing and production check section 401, the component check section 402, and the manufacturing technical section 403, the clients 501 to 503 output retrieval requests to the server 300 and perform processes such as  
10 chronologically processing and displaying the retrieved data sent from the server 300.

Fig. 15 is a flowchart showing a summary of the entire processes performed by the clients 501 to 503 of the output system. In Fig. 15, the controllers of the manufacturing and  
15 production check section 401, the component check section 402, and the manufacturing technical section 403 switch the power of the clients 501 to 503 to ON (step P600), then select and activate the program for production management system input 807b (step P601), whereby an initial screen 2000 such as that  
20 shown in Fig. 16 is displayed (step P602). A subscreen 2001 for inputting the employee number and password (step P603) is displayed in a portion of the initial screen shown in Fig. 16, and the controller inputs his employee number and password (step P603) thereto. When the above processes end, it becomes  
25 possible to input data to the screen by using the keys.

When the controller manipulates the keys (step P604), the content of the key manipulation is analyzed (step P605). When the reoccurrence prevention input key 2002 has been selected, (1) reoccurrence prevention input processing (step  
5 P606) is executed; when the monitor key 2003 has been selected, (2) monitoring processing (step P607) is executed; when the quality information key 2004 has been selected, (3) quality information processing (step P608) is executed; when the characteristic value management key 2005 has been selected,  
10 (4) characteristic value management processing is executed (step P609); (5) when the reoccurrence progress monitor key 2006 has been selected, reoccurrence progress monitor processing is executed (step P610); and when other keys have been selected, other processes are executed (step P611).

15 Subsequently, (1) the reoccurrence prevention input processing (step P606), (2) the monitoring processing (step P607), (3) the quality information processing (step P608), (4) the characteristic value management processing (step P609), and (5) the reoccurrence progress monitor processing  
20 (step P610) will be explained in detail.

#### (1) Reoccurrence Prevention Input Processing

The reoccurrence prevention input processing will be explained based on the flowchart of Fig. 17 and with reference to Fig. 18 to Fig. 21. Fig. 17 is a flowchart showing  
25 reoccurrence prevention input processing, and Fig. 18 to Fig.

21 are diagrams showing screens which are displayed during the reoccurrence prevention input processing.

Fig. 18 shows an initial screen 2009 of the reoccurrence prevention input processing, displayed when the reoccurrence prevention input processing key 2002 has been selected. In Fig. 18, reference numeral 2010 represents a key for displaying the data duration of the selected machine. When the key 2010 is pressed, the data duration of the selected machine is displayed. Reference numeral 2011 represents a product field selection box for selecting a product field to be retrieved, reference numeral 2012 represents a machine type selection box for selecting the type of machine to be retrieved, reference numeral 2013 represents a machine code selection box for selecting the machine code to be retrieved, and reference numeral 2014 represents a production step selection box for selecting the production step to be retrieved.

Furthermore, reference numeral 2015 represents a responsible sector selection box for selecting the responsible sector to be retrieved. "Component", "technology", "assembly", "design", "other" and "all" can be selected from the responsible sector selection box. Reference numeral 2016 represents a retrieval type selection box for selecting the "retrieval type" to be retrieved. One of "reoccurrence not-input data", "reoccurrence prevention input data", and "all" can be selected from the retrieval type

selection box 2016. Reference numeral 2017 represents a retrieval method selection box for selecting the "retrieval method" to be used for retrieval. One of "retrieve by date", "retrieve by installation serial number", and "retrieve by machine number" can be selected from the retrieval method selection box 2017. Reference numeral 2018 represents a retrieval target selection box for selecting the "retrieval target". Either "in-processing only" or "out-of-processing only" can be selected from the retrieval target selection box 2018.

In the flowchart of Fig. 17, the controller selects the "product field" to be retrieved in the product field selection box 2011 of the initial screen 2009 of Fig. 18 (step P700). Then, the controller selects the "machine type" to be retrieved in the machine type selection box 2012 (step P701), the "machine code" to be retrieved in the machine code selection box 2013 (step P702), and the "production step" to be retrieved in the production step selection box 2014 (step P703).

The controller selects the "responsible sector" for retrieval in the responsible sector selection box 2015 (step P704), and the "retrieval type" for retrieval in the retrieval type selection box 2016 (step P705). Moreover, the controller selects the "retrieval method" to be used for retrieval in the retrieval method selection box 2017 (step P706), and the "retrieval target" in the retrieval target selection box 2018

(step P707).

When the controller presses the retrieval conditions input key 2020 (step P708), a subscreen for specifying the retrieval method set in the retrieval method selection box 2017 in greater detail is displayed (step P709). More specifically, as shown in Fig. 19, when "retrieve by date" is selected in the retrieval method selection box 2017, a subscreen 2030 is displayed and the controller inputs the retrieval period. When "retrieve by installation serial number" is selected, a subscreen 2031 is displayed and the controller inputs the "start\_no" and "end\_no". When "retrieve by machine number" is selected, a subscreen 2032 is displayed and the controller inputs the "start\_no" and "end\_no".

When the controller has precisely specified the retrieval method and pressed the confirm button (step P710), a retrieval request based on the retrieval conditions which were set in the above-mentioned steps P700 to P710 is transmitted to the server 300 (step P711). The server 300 retrieves the data based on the retrieval conditions and transmits the data. A list of the retrieved data (raw data) is displayed in the retrieved data display box 2035 (step P712) as shown in Fig. 20.

The retrieved data display box 2035 comprises items such as "No.", "installation serial number", "machine no.", "head

no.", "redetection", "occurrence date", "process name",  
"defective item", "defect content", "line reject", "lank",  
"responsible sector", "cause of defect", "repair contents",  
"repair date", "reoccurrence prevention contents", "date of  
5 countermeasure", "time of countermeasure", and "supervisor".  
The operator can freely set which of these items to display  
in the retrieved data display box 2035.

In the retrieved data display box 2035, when the  
controller clicks on the far right cell of the object data  
10 (step P713), a reoccurrence prevention input screen 2040 is  
displayed as shown in Fig. 21 (step P714). The controller  
inputs the "reoccurrence prevention contents", "date of  
countermeasure", "time of countermeasure", and "supervisor".  
to the reoccurrence prevention input screen 2040 (step P715),  
15 and stores it by pressing the store key (step P716). The stored  
reoccurrence prevention data is transmitted to the server 300  
(step P717). The transmitted reoccurrence prevention data is  
stored in a corresponding table of the database 708 of the  
server 300. The processes of steps P700 to P717 are executed  
20 until there is a command to end (step P718).

## (2) Monitoring Processing

Monitoring will be explained in compliance with the  
flowchart of Fig. 22 and with reference to Fig. 23 to Fig.  
26. Fig. 22 is a flowchart showing monitoring processes, and  
25 Fig. 23 to Fig. 26 show screens displayed during monitoring.



Monitoring is carried out by at least one of the output system clients 501 to 503 while the manufacturing assembly line is moving.

Fig. 23 shows an initial screen of the monitoring processing which is displayed when the monitor key 2003 has been selected. In Fig. 23, reference numeral 2101 represents a key for displaying the data duration of the selected machine type. When the key 2101 is pressed, the data duration of the selected machine type is displayed. Reference numeral 2102 represents a product field selection box for selecting a product field to be retrieved, reference numeral 2103 represents a machine type selection box for selecting the type of machine to be retrieved, reference numeral 2104 represents a machine code selection box for selecting the machine code to be retrieved, and reference numeral 2105 represents an output category selection box for selecting the output target. The output target is selected from "that day's production and quality results information", "defect state in each process", "occurrence state for each defective item", "occurrence state for each responsible sector", "occurrence state for each link", "line reject/cancel state" and "occurrence state for each type of defect" which are displayed in the output category selection box 2105.

Here, "that day's production and quality results information" comprises information for determining the

disparity and variation between quality results and objects.  
"Defect state in each process" comprises information for  
determining shifts and tendencies of the occurrence state of  
defects in each process. "Occurrence state for each defective  
5 item" is for determining shifts and tendencies of the  
occurrence state of defects in each item. "Occurrence state  
for each link" is for determining shifts and tendencies of  
the occurrence state of defects of each link. "Line  
reject/cancel state" is for determining shifts and tendencies  
10 in the line rejects and cancellation state. "Occurrence state  
for each type of defect" is for determining shifts and  
tendencies of the occurrence state for each type of defect.  
This output category (output target) can be selected before  
and after data is retrieved.

15       Reference numeral 2106 represents a box for selecting  
the target "date" of the retrieval. Reference numeral 2107  
represents a box for selecting the type of information to be  
retrieved, one of the following items being selected  
therefrom: "in-processing only", "out-of-processing only",  
20 and "in-processing + out-of-processing". Reference numeral  
2108 represents a display reference box for selecting whether  
to display the information with "date of defect occurrence"  
as the reference or with "date of completion of machine" as  
the reference. The display reference box 2108 can be set  
25 before or after data is retrieved.

Reference numeral 2109 represents an "update interval" setting key. When the "update interval" setting key 2109 has been selected, the subscreen 2110 of Fig. 24 is displayed. This subscreen 2110 is for selecting whether to automatically update retrieval of information, and for setting the intervals (in minutes) which the automatic updates are carried out at. "Automatic update" is a term signifying the function of automatically retrieving information at predetermined intervals of time and displaying the latest information on the screen. Reference numeral 2115 represents an execute retrieval key. When the execute retrieval key is pressed, information matching the retrieval conditions is retrieved, and the retrieved information is displayed on the screen.

In the flowchart of Fig. 22, the controller selects the "product field" for the retrieval in the product field selection box 2101 of the initial screen of Fig. 23 (step P800). The controller selects the "machine type" to be retrieved in the machine type selection box 2103 (step P801). Then, the "machine code" is selected from the machine code selection box 2104 (step P802) and the output category (output target) s selected from the output category selection box 2105 (step P803). The update interval is set (step P805) and the type of information to be retrieved is selected (step P806).

When the controller presses the execute retrieval key 2115 (step P807), a retrieval request based on the retrieval

conditions set in the above-described steps P800 to P807 is sent to the server 300 (step P808). The server 300 retrieves the data based on the retrieval conditions and transmits the retrieved data. As shown in Fig. 25, a list of the retrieved data (raw data) is displayed in the retrieved data display box 2116 (step P809). The items displayed in the retrieved data display box 2116 include items such as "No.", "installation serial number", "machine no.", "head no.", "redetection", "occurrence date", "process name", "defective item", "defect content", "line reject", "lank", "responsible sector", "cause of defect", "repair contents", "repair date", "reoccurrence prevention contents", "date of countermeasure", "time of countermeasure", and "supervisor". The operator can freely set which of these items to display in the retrieved data display box 2116.

The output category (output target) data which was selected from the retrieved data in the output category selection box 2105 is chronologically processed (calculated and totalled) and displayed in the output target display box 2117 (step P810). The items selected from the data displayed in the output target display box are displayed in a graph in a graph display box 2118. The operator can select which items to display in the graph.

Fig. 25 shows the data displayed in the output target display box 2117 in the case where "that day's production and

quality result information" has been selected in the output category selection box 2105. The output target display box 2117 of Fig. 25 displays "Total number", "graph total number", "ratio" and number of occurrences within the time period (8 a.m. to 8 p.m.)" in correspondence with the data items (number of products {completions}, number of straight-throughs, number of defects, straight-through rate, defective rating, PQ value, number of rejects). The graph display box 2118 shown in Fig. 25 shows an example of a graph display when the number of products (completions) has been selected in the output target display box 2117.

Fig. 26A to Fig. 26F show examples of the output target display box 2117 when "defect occurrence state in each process", "occurrence state for each defective item", "occurrence state for each link", "line reject/cancel state" and "occurrence state for each type of defect" are selected in the output category selection box 2105.

The operator can print the data displayed in the display screen via the printing section 808 by pressing the print key 2120. The actual result displayed in the output target display box 2117 is compared with the predetermined action reference (step P811). When the actual result has exceeded the reference, an alarm is generated at the relevant district (the relevant assembly step or responsible sector stored beforehand etc.) (step P812). It is determined whether there

has been an end command (step P813), and if so, processing ends. When there is no end command, it is determined whether the update interval has elapsed (step P814). When the update interval has elapsed, processing returns to step S807 and data retrieval and the like are carried out (steps P808 to P812). In this way, it is always determined whether the actual result has exceeded the action reference.

### (3) Product Quality Information Processing

Product quality information processing will be explained based on the flowchart of Fig. 27 and with reference to Fig. 28 to Fig. 31F. Fig. 27 is a flowchart showing quality information processes, and Fig. 28 to Fig. 31F are diagrams showing screens displayed during the quality information processes.

Fig. 28 shows an initial screen 2200 of the quality information processing which is displayed when the quality information key 2004 has been selected. Reference numeral 2201 represents a key for displaying the data duration of the selected machine type. When the key 2201 is pressed, the data duration of the selected machine type is displayed. Reference numeral 2202 represents a production step selection box for selecting "production step" for retrieval, reference numeral 2203 represents a product field selection box for selecting a "product field" for retrieval, reference numeral 2204 represents a machine type selection box for selecting the type

of machine to be retrieved, reference numeral 2205 represents a machine code selection box for selecting the machine code to be retrieved, and reference numeral 2206 represents a production step selection box for selecting the production step to be retrieved. The output target is selected from the following items which are displayed in the output category selection box 2206: "quality trend", "defect occurrence state in each step", "occurrence state for each defective item", "occurrence state for each link", "line reject/cancel state" and "occurrence state for each type of defect".

"Quality trend" comprises information for determining the disparity and variation between essential results and objects. "Defect state in each process" comprises information for determining shifts and tendencies of the occurrence state of defects in each process. "Occurrence state for each defective item" is for determining shifts and tendencies of the occurrence state of defects in each item. "Occurrence state for each link" is for determining shifts and tendencies of the occurrence state of defects of each link. "Line reject/cancel state" is for determining shifts and tendencies in the line rejects and cancellation state. "Occurrence state for each type of defect" is for determining shifts and tendencies of the occurrence state for each type of defect. The output category (output target) can be selected before and after the information is retrieved.

Reference numeral 2207 represents a retrieval method selection box for selecting the "retrieval method" to be used for retrieval. One of "retrieve by date", "retrieve by installation serial number", and "retrieve by machine number" is selected from the retrieval method selection box 2207. Reference numeral 2208 represents a retrieval reference selection display box for selecting a "retrieval reference" for retrieval. Either one of "occurrence date reference" and "completion date reference" is selected in the retrieval reference selection display box 2208. Reference numeral 2214 represents a box for selecting the type of information to be retrieved, one of the following being selected: "in-processing only", "out-of-processing only", and "in-processing + out-of-processing".

In the flowchart of Fig. 27, the controller selects the "production step" for retrieval in the production step selection box 2202 in the initial screen of Fig. 28 (step P900), and selects the "product field" to be retrieved in the product field selection box 2203 (step P901). Then, the controller selects the "machine type" to be retrieved in the machine type selection box 2204 (step P902), the "machine code" to be retrieved in the machine code selection box 2205 (step P903). Moreover, the controller selects the output category (output target) in the output category selection box 2206 (step P904) and selects the type of information to be retrieved (step



P905).

When the controller presses the retrieval conditions input key 2029 (step P906), a subscreen for specifying the retrieval method set in the retrieval method selection box 2207 in greater detail is displayed (step P907). More specifically, as shown in Fig. 29, when "retrieve by date" is selected in the retrieval method selection box 2207, a subscreen 2210 is displayed and the controller inputs the retrieval period. When "retrieve by installation serial number" is selected, a subscreen 2211 is displayed and the controller inputs the "start\_no" and "end\_no". When "retrieve by machine number" is selected, a subscreen 2212 is displayed and the controller inputs the "start\_no" and "end\_no".

When the controller has precisely specified the retrieval method and pressed the confirm button (step P908), a retrieval request based on the retrieval conditions which were set in the above-mentioned steps P900 to P907 is transmitted to the server 300 (step P909). The server 300 retrieves the data based on the retrieval conditions and transmits the data. A list of the retrieved data (raw data) is displayed in the retrieved data display box 2220 (step P910) as shown in Fig. 30. The retrieved data display box 2220 comprises items such as "No.", "installation serial number", "machine no.", "head no.", "redetection", "occurrence date",

process name", "defective item", "defect content", "line reject", "lank", "responsible sector", "cause of defect", "repair contents", "repair date", "reoccurrence prevention contents", "date of countermeasure", "time of countermeasure", and "supervisor". The operator can freely set which of these items to display in the retrieved data display box 2220.

The output category (output target) data which was selected from the retrieved data in the output category selection box 2206 is chronologically processed (calculated and totalled) and displayed in the output target display box 2221 (step P911). The items selected from the data displayed in the output target display box are displayed in a graph in a graph display box 2222. The operator can select which items to display in the graph.

Fig. 30 shows the data displayed in the output target display box 2206 in the case where "quality trend" was selected in the output category selection box 2206. The output target display box 2221 of Fig. 30 displays "total number", "graph total number", "ratio" and "number of occurrences within each time period" in correspondence with the data items (number of products {completions}, number of straight-throughs, number of defects, straight-through rate, defective rating, PQ value, number of rejects). The graph display box 2222 shown in Fig. 30 shows an example of a graph display when the number of products (completions) has been selected in the output

target display box 2221.

Fig. 31A to Fig. 31F show examples of the output target display box 2117 when "defect occurrence state in each process", "occurrence state for each defective item", "occurrence state for each link", "line reject/cancel state" and "occurrence state for each type of defect" are selected in the output category selection box 2221.

The processes of steps P900 to P911 are carried out until an end command is received (step P912).

#### 10 (4) Characteristic Value Management Processing

Characteristic value management processing will be explained based on the flowchart of Fig. 32 and with reference to Fig. 33 to Fig. 35. Fig. 32 is a flowchart showing characteristic value management processes, and Fig. 32 to Fig. 35 are diagrams showing screens displayed during the characteristic value management processes.

Fig. 33 shows an initial screen 2300 of the characteristic value management processing when the characteristic value management key 2005 has been selected. Reference numeral 2301 represents a key for displaying the data duration of a selected measurement category. When the key 2301 is pressed, the data duration of the selected measurement category is displayed. Reference numeral 2302 represents a production step selection box for selecting the "production step" to be retrieved, reference numeral 2303

represents a measurement category selection box for selecting the "measurement category" for retrieval, reference numeral 2304 represents a machine type selection box for selecting the type of machine to be retrieved, reference numeral 2305 represents a machine code selection box for selecting the "machine code" to be retrieved, and reference numeral 2306 represents a retrieval method selection box for selecting the "retrieval method" to be used for retrieval. One of "retrieve by date", "retrieve by installation serial number", and "retrieve by machine number" is selected from the retrieval method selection box 2306.

In the flowchart of Fig. 32, the controller selects the "production step" for retrieval in the production step selection box 2302 in the initial screen of Fig. 33 (step P1001), and selects the "measurement category" to be retrieved in the measurement category selection box 2303 (step P1002). The controller selects the "machine type" to be retrieved in the machine type selection box 2304 (step P1003), selects the "machine code" to be retrieved in the machine code selection box 2305 (step P1004), and selects the "retrieval method" to be used in the retrieval method selection box 2303 (step P1005).

When the controller presses the retrieval conditions input key 2307 (step P1006), a subscreen for precisely specifying the retrieval method set in the retrieval method

selection box 2306 is displayed (step P1007). More specifically, as shown in Fig. 34, when "retrieve by date" is selected in the retrieval method selection box 2306, a subscreen 230 is displayed and the controller inputs the retrieval period. When "retrieve by installation serial number" is selected, a subscreen 2311 is displayed and the controller inputs the "start\_no" and "end\_no". When "retrieve by machine number" is selected, a subscreen 2312 is displayed and the controller inputs the "start\_no" and "end\_no".

When the controller has precisely specified the retrieval method and pressed the confirm button (step P1008), a retrieval request based on the retrieval conditions which were set in the above-mentioned steps P1001 to P1007 is transmitted to the server 300 (step P1009). The server 300 retrieves the data based on the retrieval conditions and transmits the data. As shown in Fig. 35, for example, a list of the retrieved data (raw data) is displayed in the retrieved data display box 2320, a histogram is displayed in a histogram display box 2321, an X bar is displayed in an X bar display box 2322, an R bar is displayed in an R bar display box 2323, and statistical data is displayed in a statistical data display box 2324 (step P1010).

The processes of steps P1011 to P1010 are carried out until an end command is received (step P1011).

#### (5) Reoccurrence Prevention Progress Management

Reoccurrence prevention progress management will be explained based on the flowchart of Fig. 36 and with reference to Fig. 37 to Fig. 39. Fig. 36 is a flowchart showing reoccurrence prevention progress management processes, and Fig. 37 to Fig. 39 are diagrams showing screens displayed during the reoccurrence prevention progress management processes.

Fig. 37 shows an initial screen 2400 of the characteristic value management processing when the characteristic value management key 2006 has been selected. Reference numeral 2401 represents a key for displaying the data duration of a selected machine type. When the key 2401 is pressed, the data duration of the selected machine type is displayed. Reference numeral 2402 represents a product field selection box for selecting a "product field" for retrieval, reference numeral 2403 represents a machine type selection box for selecting the type of machine to be retrieved, reference numeral 2404 represents a machine code selection box for selecting the "machine code" to be retrieved, and reference numeral 2405 represents a production step selection box for selecting the "production step" to be retrieved.

Furthermore, reference numeral 2406 represents a responsible sector selection box for selecting the responsible sector to be retrieved. "Component",

technology", "assembly", "design", "other" and "all" can be selected from the responsible sector selection box 2406. Reference numeral 2407 represents a retrieval category selection box for selecting the "retrieval category" to be  
5 retrieved. One of "reoccurrence not-input data", "reoccurrence prevention input data", and "all" can be selected from the retrieval type selection box 2407. Reference numeral 2408 represents an information category selection box for selecting the "information category".  
10 Either of "in-processing information only" and "out-of-processing information only" can be selected from the information category selection box 2408.

Reference numeral 2409 represents an "update interval" setting key for setting the update retrieval time. When the  
15 "update interval" setting key 2409 has been selected, the subscreen 2410 of Fig. 38 is displayed. This subscreen 2410 is for selecting whether to automatically update retrieval of information, and for setting the intervals (in minutes) which the automatic updates are carried out at.

20 In the flowchart of Fig. 36, the controller selects the "product field" for retrieval in the product field selection box 2402 of the initial screen 2400 of Fig. 37 (step P1100). The controller selects the "machine type" to be retrieved in the machine type selection box 2403 (step P1100). The  
25 "machine code" is selected from the machine code selection

box 2404 (step P1101) and the "production step" for retrieval is selected from the production step selection box 2405 (step P1102).

The "responsible sector" for the retrieval is selected  
5 in the responsible sector selection box 2406 (step P1103), the "retrieval category" is selected in the retrieval category selection box 2407 (step P1104), and the "information category" is selected in the information category selection box 2408 (step P1105). In addition, the update retrieval time  
10 is set (step P1106).

When the controller presses the retrieval conditions input key 2411 (step P1107), a subscreen 2412 for inputting the retrieval period is displayed as shown in Fig. 38 (step P1108). Then, when the controller specifies the retrieval  
15 method precisely and presses the confirm button (step P1109), a retrieval request based on the retrieval conditions set in the above-described steps P1100 to P1109 is sent to the server 300 (step P1110). The server 300 retrieves the data based on the retrieval conditions and transmits the retrieved data.  
20 As shown in Fig. 39, a list of the retrieved data is displayed in the retrieved data display box 2420, the occurrence ratio in each responsible sector is displayed in the responsible sector display box 2421, and the reoccurrence prevention non-input elapsed time/days is displayed (step P1111). The  
25 selected items of the data displayed in the responsible sector



display box 2421 are displayed in a graph 2422. The operator can select which items to display in graph format.

Fig. 39 shows an example of data displayed in the responsible sector display box 2421 when "All" has been selected in the responsible sector selection box 2406. In the responsible sector display box 2421 shown in Fig. 39, "number of occurrences", "graphs", "ratio", "elapsed time (before reoccurrence prevention: the time/days elapsed since the defect occurred; after reoccurrence prevention: the time/days elapsed from the occurrence of the defect to the reoccurrence prevention input) are displayed in correspondence with the responsible sectors (All, component, assembly, technology, design, other).

The processes of steps P1100 to P1111 are carried out until there is an end command (step P1112).

As described above, in the first embodiment, the clients 201 to 203 input data relating to assembly in each of the assembly steps 101 to 103. The clients 204 to 208 input data of the electrical check step 104, the image check step 105, the completion check step 106, the repair step 110, and the product check step 111. The server 300 stores the input data from the clients 201 to 208 in the database 708. The output system clients 501 to 503 specify retrieval conditions and send retrieval requests to the server 300. In response, the server 300 retrieves the data from the database 708 and

transmits it to the clients 501 to 503. The clients 501 to 503 chronologically process and output (display or print) the received retrieved data based on a predetermined output target. Therefore, products which are manufactured on an assembly line can be managed effectively and rapidly. Furthermore, since the retrieved data are processed chronologically in accordance with a predetermined output target, the data can be managed in each time band.

In the first embodiment, the clients 501 to 503 output the chronologically processed data in a display and graph format by using monitoring and the like. Therefore, the manufacturing assembly line can be managed chronologically.

In the first embodiment, the clients 501 to 503 create quality information for individual quality results, processes, defective items and responsible sectors by using monitoring and the like. This makes it possible to determine quality information for individual quality results, processes, defective items and responsible sectors.

Moreover, in the first embodiment, when a created quality information has exceeded an action reference, the clients 501 to 503 send a warning to the responsible sector of the quality information, or to the assembly step relating to the quality information. Therefore, the relevant division can learn of problems and implement countermeasures speedily.

A second embodiment of the present invention will be

explained with reference to Fig. 40 to Fig. 135 in the sequence  
"entire constitution of the production management system",  
"application constitution of the production management  
system", "constitution of input and output system clients",  
5 "step-monitoring server constitution", "constitution of  
management system client", "in-processing data input by input  
system client", "step-monitoring and alarm processing by  
output system client", and "transmission of alarm mail by  
management system client". The following explanation  
10 describes as an example a production management system of an  
assembly line which manufactures color copying machines.  
Entire Constitution of Production Management System

Fig. 40 is a diagram showing a schematic constitution  
of the production management system according to the first  
15 embodiment. In Fig. 40, reference numeral 3100 represents a  
color copying machine manufacturing assembly line. The  
manufacturing assembly line 3100 comprises an assembly I step  
3101, an assembly II step 3102, ..., an assembly N step 3103,  
an electrical check step 3104, an image check step 3105, a  
20 completion check step 3106, a repair step 3110 and a product  
check step 3111.

Reference numerals 3201 to 3203 represent clients which  
input data of the assembly I step 3101, the assembly II step  
3102, ..., and the assembly N step 3103. An operator inputs  
25 data representing production and assembly contents for each

component and unit to the clients 3201 to 3203. The clients 3201 to 3203 transfer the data to a server 3300 which is explained later.

Reference numerals 3204 to 3206 represent clients for  
5 inputting data of the electrical check step 3104, the image check step 3105, and the completion check step 3106. An operator inputs data representing checks, confirmed contents and results for products assembled in the assembly steps 3101 to 3103 to the clients 3204 to 3206. The clients 3204 to 3206  
10 transfer the data to a server 3300 which is explained later.

Reference numeral 3207 represents a client for inputting data of the repair step 3110. The operator inputs data of the repair step 3110 to the client 3207. The client 3207 transfers the data to the server 3300 explained later.

15 Reference numeral 3208 represents a client of product check step 3111 which checks the data input in the steps from the assembly I step 3101 to the repair step 3110. The clients 3201 to 3208 constitute the input system. In the example described here, the manufacturing assembly line 3100  
20 comprises a manufacturing assembly line for manufacturing color copying machines, but the present invention is not limited to this and can be applied in a manufacturing assembly line for components and units.

Reference numeral 3300a represents a step-monitoring  
25 server 3300a which manages the entire production management

system. The step-monitoring server 3300a holds the data transmitted from the clients 3201 to 3208 in a database. In response to retrieval requests from clients 3501 to 3503 explained later, the server 3300a retrieves the data from the database and transmits it to the clients 3501 to 3503. Reference numeral 3300b represents a mail server which transmits alarm mail. The mail server 3300b is connected to the production management system and to an outside network 3700. The mail server 3300b transmits an alarm mail sent from a management system client 3600 to a specified destination (a terminal within the production management system or a terminal connected to the outside network 3700). The step-monitoring server 3300a and the mail server 3300b constitute a database system.

Reference numeral 3401 represents a manufacturing and production check section, reference numeral 3402 represents a component check section, and reference numeral 3403 represents a manufacturing technical section. Reference numerals 3501 to 3503 represent clients of the manufacturing and production check section 3401, the component check section 3402, and the manufacturing technical section 3403. The clients 3501 to 3503 output retrieval requests to the server 3300 based on predetermined retrieval conditions, and process the retrieved data which the server 3300 sends in response to the requests. The clients 3501 to 3503 constitute an output

system.

Reference numeral 3420 represents a monitoring section,  
and reference numeral 3600 represents a management system  
client which is provided in the monitoring section. The  
5 management system client 3600 transmits an alarm mail to a  
predetermined destination when defective data of an assembled  
product and the like, which is stored in the database of the  
step-monitoring server 3300a, has exceeded a reference value.  
The management system client 3600 constitutes a management  
10 system.

Subsequently, the basic operation of the assembly steps  
3101 to 3103 will be explained with reference to the flowchart  
of Fig. 41. Fig. 41 is a flowchart showing the basic operation  
of the assembly steps 3101 to 3103. In Fig. 41, the operators  
15 of the assembly steps 3101 to 3103 extract the barcode data  
(machine type code and installation serial number) of the  
assembly product in the barcode table which is appended to  
the assembly product on the line via the input system clients  
3201 to 3203 (step T1). The extracted machine type code and  
20 installation serial number are displayed on the screens of  
the input system clients 3201 to 3203 (step T2). Then, data  
(unit data, check table data, defect data, etc.) which matches  
the data of the machine type code and installation serial  
number is retrieved from the database of the step-monitoring  
25 server 3300a (step T3). The operators of the assembly steps

3101 to 3103 execute assembly on the line while the data of the step-monitoring server 3300a is being retrieved (step T4). After the data has been retrieved from the database of the step-monitoring server 3300a, the retrieved data is displayed  
5 on the screens of the input system clients 3201 to 3203 (step T5). The operator inputs the necessary data on the screen. When there is a unit attachment step, the barcode data (unit management no.) is read by using a barcode reader and displayed on the screen (step T6). The operator inputs the necessary  
10 data on the screen. In accordance with a storage command from the operator, the data on the screen is stored in the database of the step-monitoring server 3300a (step T7).

Subsequently, the basic operation of the check steps 3104 to 3106 will be explained with reference to the flowchart  
15 of Fig. 42. Fig. 42 is a flowchart showing the basic operation of the check steps 3104 to 3106. In Fig. 42, the operators (checkers) of the check steps 3104 to 3106 extract the barcode data (machine type code and installation serial number) of the assembly product in the barcode table which is appended  
20 to the assembly product on the line via the input system clients 3204 to 3206 (step T11). The extracted machine type code and installation serial number are displayed on the screens of the input system clients 3204 to 3206 (step T12). Then, data (unit data, check table data, defect data, etc.) which matches  
25 the data of the machine type code and installation serial

number is retrieved from the database of the step-monitoring server 3300a (step T13). The operators of the assembly steps 3101 to 3103 execute the check on the line while the data of the step-monitoring server 3300a is being retrieved (step T14).

- 5 After the data has been retrieved from the database of the step-monitoring server 3300a, the retrieved data is displayed on the screens of the input system clients 3204 to 3206 (step T15). The operators input the retrieval results of the check table items onto the screen (step T16). In accordance with
- 10 a storage command from the checker, the data on the screen is stored in the database of the step-monitoring server 3300a (step T17).

In this example, barcode data (machine type code and installation serial number) is read from a barcode table, but

15 the barcode may be read from a barcode which is pasted onto the assembly product.

Subsequently, the basic operations of the manufacturing and production check section 3401, the component check section 3402, and the manufacturing technical section 3403 will be

20 explained with reference to the flowchart of Fig. 43. Fig. 43 is a flowchart showing basic operations of the manufacturing and production check section 3401, the component check section 3402, and the manufacturing technical section 3403.

In Fig. 43, the supervisors of the manufacturing and

25 production check section 3401, the component check section



3402, and the manufacturing technical section 3403 set retrieval conditions for retrieving data stored in the database of the step-monitoring server 3300a in order to learn the state of the product of the production management system on that particular day, and in daily and monthly units (step T21). The retrieval requests are transmitted to the step-monitoring server 3300a (step T22), and the step-monitoring server 3300a retrieves and transmits data which matches the retrieval conditions (step T23). The retrieved data is process chronologically and displayed on the screens of the output system clients 3501 to 3503 (step T24).

Subsequently, the basic operation of the monitoring section 3420 will be explained with reference to the flowchart of Fig. 44. Fig. 44 is a flowchart showing basic operation of the monitoring section 3420. In Fig. 44, the controller of the monitoring section 3420 sets retrieval conditions by using the management system client 3600 for retrieving data stored in the database of the step-monitoring server 3300a in order to learn whether there are any problems with the manufacture of the product and the like (step T31). The retrieval requests are transmitted to the step-monitoring server 3300a (step T32), and the step-monitoring server 3300a retrieves and transmits data which matches the retrieval conditions (step T33). When the retrieved data contains data which is disqualified by the alarm reference, an alarm mail

is transmitted as notification that a problem has arisen at the stored destination (step T34).

#### Constitution of Input System and Output System Clients

Fig. 45 is a block diagram showing the schematic  
5 constitution of the input system clients 3201 to 3208 and the output system clients 3501 to 3503 shown in Fig. 40. The input system clients 3201 to 3208 and the output system clients 3501 to 3503 have identical constitutions. As shown in Fig. 45,  
10 the input system clients 3201 to 3208 and the output system clients 3501 to 3503 comprise an input section 3601 for inputting data, a display section 3602, a communications section 3603 which performs data communications, a CPU 3604 which controls the entire apparatus, a RAM 3605 which is used as the work area of the CPU 3604, a recording medium access  
15 apparatus 3606 which reads and writes data to and from a recording medium 3607, the recording medium 3607 which stores programs and the like for operating the CPU 3604, a printing section 3608, and a speaker 3609.

The input section 3601 comprises a keyboard having a  
20 cursor key, a number input key, various types of function keys and the like, a mouse, a barcode reader, and the like. The operator supplies a control command to the CPU 3604 and inputs data by using the input section 3601 as a user interface.

The display section 3602 comprises a CRT, an LCD or the  
25 like, and displays data in accordance with display data input

from the CPU 3604. The communications section 3603 connects to a network and exchanges data communications with the server 3300 and other clients via this network.

The CPU 3604 is a central processing unit which controls  
5 the entire apparatus in compliance with the programs stored in the recording medium 3607. The CPU 3604 is connected to the input section 3601, the display section 3602, the communications section 3603, the RAM 3605, the recording medium access apparatus 3606, the printing section 3608, and  
10 the speaker 3609. The CPU 3604 controls data communications, reading of application programs by accessing the memory, reading and writing various types of data, inputting data and commands, displaying, and the like.

The RAM 3605 comprises a work memory which stored  
15 specified programs, input commands, input data, processing results and the like, and a display memory which temporarily stores display data displayed on a display screen of the display section 3602.

The recording medium 3607 stores various types of  
20 programs and data such as an OS program 3607a which can be executed by the CPU 3604 (e.g. WINDOWS 95 and WINDOWS NT) and application programs. Application programs include, for example, a program for production management system input 3607b. The recording medium comprises, for example, an  
25 optical, magnetic or electrical recording medium such as a

floppy disk, a hard disk, a CD-ROM, a DVD-ROM, an MO, and a PC card. The various types of programs are stored in the recording medium 3607 in a data format which the CPU 3604 can read. The various types of programs is sometimes stored  
5 beforehand in the recording medium or downloaded via a communications line and then stored in the recording medium. The various programs can be transmitted by communications lines.

The printing section 3608 for example comprises a laser  
10 printer which prints data displayed on the display section 3602 onto paper in compliance with the CPU 3604. The speaker 3609 emits the sound of the alarm and the like in compliance with the CPU 3604.

The input system clients 3201 to 3208 download the  
15 in-processing input program 3707c (see Fig. 46) from the step-monitoring server 3300a, and the CPU 3604 inputs in-processing data described later in compliance with the in-processing input program 3707c.

The output system clients 3501 to 3503 download the  
20 step-monitoring/alarm program 3707d (see Fig. 46) from the step-monitoring server 3300a, and the CPU 3604 executes step-monitoring/alarm processing in compliance with the step-monitoring/alarm program 3707d.

The output system clients 3501 to 3503 download the  
25 step-monitoring quality program 3707e from the step-

monitoring server 3300a, and the CPU 3604 executes step-monitoring quality processing in compliance with the step-monitoring quality program 3707f.

The output system clients 3501 to 3503 download the  
5 daily/monthly program 3707f (see Fig. 46) from the step-monitoring server 3300a, and the CPU 3604 executes daily/monthly processing in compliance with the daily/monthly program 3707g.

The output system clients 3501 to 3503 download a free  
10 retrieval program 3707g (see Fig. 46) from the step-monitoring server 3300a, and the CPU 3604 executes free retrieval in compliance with the free retrieval program 3707g. In this way, since programs are downloaded from the step-monitoring server 3300a they need not be installed to the clients each time the  
15 programs are altered. Consequently, altered programs can be rapidly used in the production management system.

#### Constitution of Step-monitoring Server

Fig. 46 is a block diagram showing the schematic constitution of the step-monitoring server 3300a shown in Fig.  
20 40. As shown in Fig. 46, the step-monitoring server 3300a comprises an input section 3701 for inputting data, a display section 3702, a communications section 3703 which performs data communications, a CPU 3704 which manages the entire production management system and controls the entire  
25 apparatus, a RAM 3705 which is used as the work area of the

CPU 3704, a recording medium access apparatus 3706 which reads and writes data to/from a recording medium 3707, a recording medium 3707 which stores programs and the like for operating the CPU 3704, a first database 3708 for storing various types  
5 of master tables, and a second database 3709 for storing various types of master tables.

The input section 3701 comprises a keyboard having a cursor key, a number input key, various types of function keys and the like, a mouse, a barcode reader, and the like. The  
10 operator supplies a control command to the CPU 3704 and inputs data by using the input section 3701 as a user interface.

The display section 3702 comprises a CRT, an LCD or the like, and displays data in accordance with display data input from the CPU 3704. The communications section 3703 connects  
15 to a network and exchanges data communications via the network with the input system clients 3201 to 3208 and the output system clients 3501 to 3503.

The CPU 3704 is a central processing unit which controls the entire apparatus in compliance with the programs stored  
20 in the recording medium 3707. The CPU 3704 is connected to the input section 3701, the display section 3702, the communications section 3703, the RAM 3705, the recording medium access apparatus 3706, and the database 3708. The CPU 3704 controls data communications, reading of application  
25 programs by accessing the memory, reading and writing various

types of data, inputting data and commands, displaying, and the like.

The RAM 3705 comprises a work memory which stored specified programs, input commands, input data, processing  
5 results and the like, and a display memory which temporarily stores display data displayed on a display screen of the display section 3702.

The above-mentioned recording medium 3707 stores various types of programs and data such as an OS program 3707a  
10 which can be executed by the CPU 3704 (e.g. WINDOWS NT Server V4.0) and application programs. Application programs include, for example, the program for production management system server 3707b, the program for in-processing input 3707c, the step-monitoring/alarm program 3707d, the step-monitoring  
15 quality program 3707e, the daily/monthly program 3707f, the free retrieval program 3707g, and the like. The recording medium comprises, for example, an optical, magnetic or electrical recording medium such as a floppy disk, a hard disk, a CD-ROM, a DVD-ROM, an MO, and a PC card. The various types  
20 of programs are stored in the recording medium 3707 in a data format which the CPU 3704 can read. The various types of programs may be stored beforehand in the recording medium 3707 or downloaded via a communications line and stored in the recording medium 3707. The programs stored in the recording  
25 medium 3707 can be transmitted via a communications line.

Fig. 47 shows one example of a format of the first database 3708 of Fig. 46. As shown in Fig. 47, a variety of master tables are stored in the first database 3708. As shown in Fig. 47, the master tables comprise machine type code name master table 3708a, factory name master table 3708b, product field master table 3708s, production step master table 3708d, Line No. master table 3708e, Lank master table 3708f, input supervisor master table 3708g, responsible sector master table 3708h, repair contents master table 3708i, unit check item master table 3708j, repair supervisor master table 3708k, in-processing check item master table 3708l, supervisor countermeasure master table 3708m, individual step settings master table 3708n, alarm receiver master table 3708o, check table item master table 3708p, unit name master table 3708q, name of machine type master table 3708r, alarm management master table 3708s, alarm value master table 3708t, defect content master table 3708u, and unit check table item master table 3708v.

Fig. 48 shows one example of a format of the second database 3709 of Fig. 46. As shown in Fig. 48, a variety of data tables are stored in the second database 3709. As shown in Fig. 48, the data tables comprise check table data table 3709a, check table revision history data table 3709b, unit management No. data table 3709c, main data table 3709d, unit main data table 3709e, in-processing defect data table 3709f,



out-of-processing defect data table 3709g, unit defect data table 3709h, unit check table data table 3709i, and unit data table 3709k.

Fig. 49 to Fig. 70 show examples of data formats of the master tables 3708a to 3708v. In these diagrams, the symbol "\*" is appended to items which are used as retrieval keys.

Fig. 49 is a diagram showing an example of the format of the machine type code name master table 3708a. As shown in Fig. 49, the machine type code name master table 3708a stores data comprising "No.", "Machine type code", "Machine type abbreviated name", "Product name", "Voltage display", and "Machine type Code". A machine type code name master table 3708a is provided for each type of machine.

Fig. 50 is a diagram showing an example of the format of the factory name master table 3708b. As shown in Fig. 50, the factory name master table 3708b stores data comprising "No.", "factory name", and "abbreviation".

Fig. 51 is a diagram showing an example of the format of the product field master table 3708c. As shown in Fig. 51, the product field master table 3708c stores "product field" data.

Fig. 52 is a diagram showing an example of the format of the production step master table 3708d. As shown in Fig. 52, the production step master table 3708d stores "No." and "production step" data.

Fig. 53 is a diagram showing an example of the format of the line No. master table 3708e. As shown in Fig. 53, the line No. master table 3708e stores "Line No." data.

Fig. 54 is a diagram showing an example of the format of a Lank master table 3708f. As shown in Fig. 54, the Lank master table 3708f stores "Lank" data (review request and handling of information).

Fig. 55 is a diagram showing an example of the format of the input supervisor master table 3708g. As shown in Fig. 55, the input supervisor master table 3708g stores data comprising "employee No.", "Name" and "Password".

Fig. 56 is a diagram showing an example of the format of the responsible sector master table 3708h. As shown in Fig. 56, the responsible sector master table 3708h stores data comprising "No.", "Responsible sector 1", "Responsible sector 2" and "Responsible sector 3".

Fig. 57 is a diagram showing an example of the format of the repair contents master table 3708i. As shown in Fig. 57, the repair contents master table 3708i stores data comprising "No.", "Repair contents 1", "Repair contents 2", and "Repair 3".

Fig. 58 is a diagram showing an example of the format of the unit check table supervisor master table 3708j. As shown in Fig. 58, the unit check table supervisor master table 3708j stores data comprising "No." and "name of supervisor".

Fig. 59 is a diagram showing an example of the format of the repair supervisor master table 3708k. As shown in Fig. 59, the repair supervisor master table 3708k stores the "name of supervisor" of the repair supervisor.

5            Fig. 60 is a diagram showing an example of the format of the in-processing check supervisor master table 3708l. As shown in Fig. 60, the in-processing check supervisor master table 3708l stores the "name of supervisor" of the in-processing check supervisor.

10           Fig. 61 is a diagram showing an example of the format of the countermeasure supervisor master table 3708m. As shown in Fig. 61, the countermeasure supervisor master table 3708m stores "No." and "name of supervisor".

15           Fig. 62 is a diagram showing an example of the format of the individual step operation settings master table 3708n. As shown in Fig. 62, the individual step operation settings master table 3708n stores data comprising "No.", "Name of step", "Display Process", "Checker", and "Tab Control".

20           Fig. 63 is a diagram showing an example of the format of the alarm receiver master table 3708o. As shown in Fig. 63, the alarm receiver master table 3708o stores data comprising "No.", "Responsible sector 1", "Responsible sector 2", "Responsible sector 3", "Notes\_ID", and "Transmission category".

25           Fig. 64 is a diagram showing an example of the format

of the check table item master table 3708p. As shown in Fig. 64, the check table item master table 3708p stores data comprising "Machine type code", "No.", "Name of step", "Check item", "Stipulation", and "Input type". A check table item master table 3708p is prepared for each machine type. Here, the an entry of "1" in the "Input type" represents "direct input", and "2" represents "pass/fail" input.

Fig. 65 is a diagram showing an example of the format of the unit name master table 3708q. As shown in Fig. 65, the unit name master table 3708q stores data comprising "No.", "Unit No.", "Unit symbol", "Unit name", "Unit sector", "Machine type code", "Unit machine type code", and "Existence of Unit check table". The unit name master table 3708q is prepared for each name of machine type.

Fig. 66 is a diagram showing an example of the format of the name of machine type master table 3708r. As shown in Fig. 66, the name of machine type master table 3708r stores data comprising "name of machine type", "Product field", "Production point", "Date when production started", "Server Name", "IP\_Address", "DBName", "Head\_NO\_Flg" and "Mail Transmission".

Fig. 67 is a diagram showing an example of the format of the alarm management master table 3708s. As shown in Fig. 67, the alarm management master table 3708s stores data comprising "Management sector", "Organization", "Target

Value", and "Alarm value".

Fig. 68 is a diagram showing an example of the format of the alarm value master table 3708t. As shown in Fig. 68, the alarm value master table 3708t stores data comprising "No.", "Management sector", "Defective sector", "Name of step", "Defective Item", "Defect content 1", "Defect content 2", "Defect content 3", "LineOut", "Something strange", "Lank", "Responsible sector 1", "Responsible sector 2", "Responsible sector 3", "Repair supervisor", "Reoccurrence Prevention Contents", "Countermeasure supervisor", "Alarm value", "Alarm result", "Alarm time", and "Date of Mail transmission".

Fig. 69 is a diagram showing an example of the format of the defect content master table 3708u. As shown in Fig. 69, the defect content master table 3708u stores data comprising "Name of machine type", "Name of step", "No.", "Defective item", "Defect content 1", "Defect content 2", and "Defect content 3".

Fig. 70 is a diagram showing an example of the format of the unit check table item master table 3708v. As shown in Fig. 70, the unit check table item master table 3708v stores data comprising "Unit symbol", "Unit sector", "No.", "Classification", "Check item", "Stipulation", and "Check method". The unit check table item master table 3708v is prepared for each name of machine type.

Subsequently, Fig. 71 to Fig. 79 show examples of data

formats of the data tables 3709a to 3709j. In these diagrams, the symbol "\*" is appended to items which are used as retrieval keys.

Fig. 71 is a diagram showing an example of the format of the check table data table 3709a. As shown in Fig. 71, the check table data table 3709a stores data (check table data) comprising "Installation serial number", "Machine Type Code", "Check Table Link", "No.", "Production step", "Name of step", "Check item", "Stipulation", "Determination\_Complete", "Redetection Mark" and "Input Type". Here, an entry of "1" in the "Input type" represents "direct input", and "2" represents "pass/fail" input. The data (raw data) from the input system clients 3201 to 3208 is sequentially added to the check table data table 3709a. The check table data table 3709a is prepared for each name of machine type.

Fig. 72 is a diagram showing an example of the format of the check table revision history data table 3709b. As shown in Fig. 72, the check table revision history data table 3709b stores data comprising "Machine type code", "No.", "Item", "Contents", "Date of creation", "Date of editing", and "Approved".

Fig. 73 is a diagram showing an example of the format of the unit management No. data table 3709c. As shown in Fig. 73, the unit management No. data table 3709c stores data comprising "Installation serial number", Machine type code",

"Unit No.", "Unit symbol", "Unit sector", "Production step", "Unit Name", and "Unit management No.". The unit management No. data table 3709c is prepared for each name of machine type.

Fig. 74 is a diagram showing an example of the format of the main data table 3709d. As shown in Fig. 74, the main data table 3709d stores data (quality data) comprising "Factory name", "Product field", "Name of machine type", "Production step", "Line No.", "Machine type code", "Installation serial number", "Machine number", "Installation start date", "Installation start time", "Completion date", "Completion time", "LineoutFlg", "Process input hold Flg", "Manufacturing check input hold Flg", "Manufacturing check Sample Flg", "Market generation flg", "Input date", "Number of defects", "Number of something  
stranges", "Number of non-reoccurrences", "Number of redetections", "Number of information handlings", "Special stipulations", and "Date of Latest update". The main data table 3709d is prepared for each machine type. In the main data table 3709d, the data totalled by the input system clients 3201 to 3208 is written as a key over the machine type code and Installation serial number.

Fig. 75 is a diagram showing an example of the format of the in-processing defect table 3709f. As shown in Fig. 75, the in-processing defect table 3709f stores data (quality data) comprising "Factory name", "Product field", "Name of

machine type", "Production step", "Line No.", "Machine type  
code", "Installation serial number", "Machine number",  
"defect serial number", "Machine number", "Defective sector",  
"Number of reoccurrences", "Date of Occurrence", "Time of  
5 Occurrence", "Name of step", "Defective Item", "Defect  
content 1", "Defect content 2", "Defect content 3", "Lineout",  
"Lank", "Something strange", "Responsible sector 1",  
"Responsible sector 2", "Responsible sector 3", "Non-  
reoccurrence", "Cause of defect", "Repair contents 1",  
10 "Repair contents 2", "Repair contents 3", "Repair Date",  
"Repair time", "Repair supervisor", "Reoccurrence prevention  
Contents", "Date of Countermeasure", "Time of Countermeasure",  
Countermeasure supervisor", "Date of Latest update", and  
"Mail transmission flag". Here, an entry of "1" in the "Input  
15 type" represents "direct input", and "2" represents  
"pass/fail" input. The data (raw data) from the input system  
clients 3201 to 3208 is sequentially added to the in-processing  
defect table 3709f. The in-processing defect table 3709f is  
prepared for each name of machine type.

20 Fig. 76 is a diagram showing an example of the format  
of the out-of-processing table 3709g. As shown in Fig. 76,  
the out-of-processing table 3709g stores data comprising  
"factory name", "Product field", "Name of machine type",  
"Production step", "Management No.", "Defect serial number",  
25 "Number of reoccurrences", "Date of Occurrence", "Time of



Occurrence", "Unit name", "Defective Item", "Defect content 1", "Defect content 2", "Defect content 3", "Lineout", "Something strange", "Lank", "Responsible sector 1", "Responsible sector 2", "Responsible sector 3", "Non-reoccurrence", "Cause of defect", "Repair contents 1", "Repair contents 2", "Repair Date", "Repair time", "Repair supervisor", "Reoccurrence prevention Contents", "Date of Countermeasure", "Time of Countermeasure", "Countermeasure supervisor", and "Date of Latest update". The out-of-processing defect data table 3709g is prepared for each name of machine type.

Fig. 77 is a diagram showing an example of the format of the unit main data table 3709h. As shown in Fig. 77, the unit main data table 3709h stores data comprising "Factory name", "Product field", "Name of machine type", "Production step", "Unit symbol", "Unit sector", "Unit management number", "Unit name", "Installation start date", "Installation start time", "Completion date", "Completion time", "Input date", "Number of defects", "Number of something stranges", "Number of reoccurrences", "Number of redetections", and "Date of latest update". The unit main data table 3709h is prepared for each name of machine type.

Fig. 78 is a diagram showing an example of the format of the unit check table data table 3709i. As shown in Fig. 78, the unit check table data table 3709i stores data

comprising "Unit management number", "Unit symbol", "Unit sector", "Production step", "No.", "Classification", "Check item", "Stipulation", "Check method", "Determination", and "Redetection mark". The unit check table data table 3709i is prepared for each name of machine type.

Fig. 79 is a diagram showing an example of the format of the unit data table 3709j. As shown in Fig. 79, the unit data table 3709j stores data comprising "Unit management number", "Unit symbol", "Unit sector", "Production step", "Unit name", "Check date", "Check time", "Redetection mark", and "Pass mark. The unit data table 3709j is prepared for each name of machine type.

#### Constitution of Management System Client

Fig. 80 is a block diagram showing the schematic constitution of the management system client 3600 of Fig. 40. As shown in Fig. 80, the management system client 3600 comprises an input section 3801, a display section 3802, a communications section 3803 which performs data communications, a CPU 3804 which controls the entire apparatus, a RAM 3805 used as the work area of the CPU 3804, a recording medium access apparatus 3806 which reads and writes data to/from a recording medium 3807, and a recording medium 3807 which stores programs and the like for operating the CPU 3804.

The input section 3801 comprises a keyboard having a cursor key, a number input key, various types of function keys

and the like, a mouse, a barcode reader, and the like. The operator supplies a control command to the CPU 3804 and inputs data by using the input section 3801 as a user interface.

The display section 3802 comprises a CRT, an LCD or the like, and displays data in accordance with display data input from the CPU 3804. The communications section 3803 connects to a network and exchanges data communications with the step-monitoring server 3300a and other clients via this network.

The CPU 3804 is a central processing unit which controls the entire apparatus in compliance with the programs stored in the recording medium 3807. The CPU 3804 is connected to the input section 3801, the display section 3802, the communications section 3803, the RAM 3805, the recording medium access apparatus 3806, and a printing section 3808. The CPU 3804 controls data communications, reading of application programs by accessing the memory, reading and writing various types of data, inputting data and commands, displaying, and the like.

The RAM 3805 comprises a work memory which stored specified programs, input commands, input data, processing results and the like, and a display memory which temporarily stores display data displayed on a display screen of the display section 3802.

The above-described recording medium 3807 stores

various types of programs and data such as an OS program 3807a which can be executed by the CPU 3804 (e.g. WINDOWS 95 and WINDOWS NT) and application programs. Application programs include, for example, an alarm mail transmission program 3807b, a master maintenance program 3807c, and the like. The recording medium comprises, for example, an optical, magnetic or electrical recording medium such as a floppy disk, a hard disk, a CD-ROM, a DVD-ROM, an MO, and a PC card. The various types of programs are stored in the recording medium 3807 in a data format which the CPU 3804 can read. The various types of programs may be stored beforehand in the recording medium or downloaded via a communications line and stored in the recording medium. The programs can be transmitted via the communications line.

In the management system client 3600, the CPU 3804 transmits the alarm mail by executing a process explained later in compliance with the alarm mail transmission program 3807b. In the management system client 3600, the CPU 3804 inputs, adds, changes, deletes, and the like, data of the master tables of the step-monitoring server 3300a in compliance with the master maintenance program 3807c. More specifically, the management system client 3600 inputs, adds, changes, deletes, and the like, data of the machine type code name master table 3708a, the individual step settings master table 3708n, the repair supervisor master table 3708k, the defect content



numeral 4006 represents "operator", reference numeral 4007 represents "machine type code", reference numeral 4008 represents "installation serial number", reference numeral 4009 represents "machine number", reference numeral 4010 represents "assembly date", reference numeral 4011 represents "assembly time", reference numeral 4012 represents "completion date", and reference numeral 4013 represents "completion time". These input boxes "factory 4001", "production step 4002", "line no. 4003", "machine type 4004", "name of step 4005", "operator 4006", "machine type code 4007", "installation serial number 4008", "machine number 4009", "assembly date 4010", "assembly time 4011", "completion date 4012", and "completion time 4013" form a main data input block. 4016.

Reference numeral 4020 represents a defect content data input block for inputting data representing the content of each defect. The defect content data input block 4020 displays items such as "Number of reoccurrences", "Date of Occurrence", "Time of Occurrence", "Name of step", "Defective Item", "Defect content 1", "Defect content 2", "Defect content 3", "Repair contents 1", "Repair contents 2", "Repair contents 3", "Non-reoccurrence", "Cause of defect", "Responsible sector 1", "Responsible sector 2", Responsible sector 3", "Repair Date", "Repair time", "Repair supervisor", "Line reject", "Something strange", "Lank", "Reoccurrence

prevention Contents", "Date of Countermeasure", "Time of Countermeasure", and "Countermeasure supervisor". The operator inputs the data when the content of the defect is known.

5           Reference numeral 4017 represents a selection list block which items (data) to be input to the defect content data input block 4020 are displayed in. Reference numeral 4031 represents a "store F1" key for storing the input data in the step-monitoring server 3300a, and reference numeral 4032  
10 represents an "automatic store F8" key for automatically storing the input data in the step-monitoring server 3300a. Reference numeral 4033 represents a "completion F5" key.

Fig. 96 shows the case where the check table data input block 4051 and the unit data input block 4051 are display  
15 simultaneously in the selection list input block 4017. It is determined whether or not to display the check table data input block 4051 and the unit data input block 4051 based on "tab control" data in the individual step operation settings master table 3708n as explained later. The unit check table and unit  
20 defect content can be displayed by double-clicking on the unit data of the unit item in the unit data input block 4051. Fig. 97 shows an example of a display screen 4052 of the unit check table and unit defect content.

Activation conditions are set in the input system  
25 clients 3201 to 3208. When "Tools" (T) is selected in the

in-processing data input screen of Fig. 87, a pull-down menu 4015 for setting the activation conditions is displayed as shown in Fig. 88. The activation conditions are set separately for each of the input system clients 3201 to 3208.

- 5 The pull-down menu 4015 displays "set input conditions", "set date and time", "set individual step operations", "check table history", "change password", and "set activation conditions".

The activation conditions are set here because there are likely to be many input mistakes when the first initial values (factory, production step, line No., name of machine type, name of step) are set when activating the input system clients, and moreover it is time-consuming to input the same contents each time. For these reasons, the initial values are input automatically to prevent input mistakes and improve  
10 input efficiency.  
15

When "set input conditions" is selected in the pull-down menu 4015, a dialogue box 4041 for setting the input conditions is simultaneously displayed as shown in Fig. 89. The input conditions are set in the dialogue box 4041. The dialogue box  
20 4041 displays settings such as "Check for input leakage of check table data when storing completed data?", "Check for input leakage of repair contents data when storing completed data?", "Check unit check table data when inputting unit management no.?", "Automatically input empty portion of check  
25 table when storing with F8?", "Defect content period", and



"Repair contents period". The set contents (data) are stored as input conditions settings files in the recording media 3607 of each of the input system clients 3201 to 3208. The "Defect content period", and "Repair contents period" are set in units  
5 of days.

When "set activation conditions" is selected in the pull-down menu 4015 of Fig. 88, a dialogue box 4042 for setting the activation conditions is displayed on the screen of Fig. 88 as shown in Fig. 90. The activation conditions are set for  
10 each of the input system clients 3201 to 3208 in the dialogue box 4042. The dialogue box 4042 contains settings for "factory", "production step", "line No.", "name of machine type", and "name of step". The set contents (data) are stored as activation conditions setting files in the recording media  
15 3607 of the input system clients 3201 to 3208. Since the initial values of the input system clients 3201 to 3208 are different, the activation conditions settings data are held for each of the input system clients 3201 to 3208 and are read out separately when each client is activated. The activation  
20 conditions settings data are set in the display boxes "factory 4001", "production step 4002", "line no. 4003", "machine type 4004", and "name of step 4005".

As the activation conditions settings data of the example shown in Fig. 90, "Atsugi" is set as the "factory",  
25 "mass-production" is set as the "production step", "A6112"

is set as the "line No.", "CattleyaII" is set as the "name of machine type", and "All" is set as the "name of step".

When "set individual step operations" is selected in the pull-down menu 4015 of Fig. 88, a password input screen is displayed as shown in Fig. 91. When the correct password is input to the password input screen, a dialogue box 4044 for setting the individual step operations is displayed on the screen of Fig. 89, as shown in Fig. 92. A password is required in order to prevent any operator from setting the individual step operations. Only someone who is authorized to know the password can set the individual step operations.

The individual step operations are set in the dialogue box 4044, and the set data is stored in the individual step operations settings master table 3708n of the step-monitoring server 3300a. "No.", "name of step", "name of display process", "checker", and "tab control" are set in the dialogue box 4044.

"Display process" is the function of displaying a process which has been set in a check table during a display process. It is possible to show the display in each process or as a group display of multiple processes. Due to production fluctuations, processes must frequently be divided. Since such divisions cannot be handled by a management method using conventional processing units, the processes are arranged in blocks by using this operations setting function. "Checker"

comprises management data for automatically displaying and storing a "checker" for the "display process" when the "automatic store F8" key 4032 is pressed to store the data.

"Tab control" is for setting which data (check table or unit name etc.) to display in each step. For example, when "check table" is set in the "tab control" box of a particular step, the "check table" data is displayed on the screens of the input system clients 3201 to 3208 which execute that step. As a consequence, it is possible to display or not display "check table" and "unit name" in each step.

When the "save" key 4044 is pressed, the data which has been set in the dialogue box 4044 is stored in the individual step operations setting master table 3708n of the step-monitoring server 3300a.

As shown in Fig. 93, for example, the "name of step" is "mechanical check 02", the "display step" of the individual step operation setting which corresponds to the mechanical check 02 is "mechanical check 01", the "checker" is Ono, and the "tab control" is the check table. In this case, the check table (checker: Ono) of the mechanical check 01 is displayed in the check table data input block 4050. In Fig. 94, the "name of step" is "electrical check 02", the "display step" of the individual step operation setting which corresponds to the electrical check 02 is "electrical check 02, electrical check 03", the "checkers" are Domochi and Kobayashi, and the "tab

control" is the check table + Unit. In this case, check tables of the electrical check 02 and the electrical check 03 (checkers: Domochi and Kobayashi) are displayed in the check table data input block 4050. In addition, the unit data input  
5 block is also displayed. When "All" is entered as the "name of step", the check tables of all the check steps are displayed.

When "Start" is entered into the "tab control" box, the step which "start" is allocated to is recognized as the first step and the data of its "check table" is automatically  
10 displayed on all screens. That is, "Start" is allocated to the first step of the assembly process.

When "check table history" is selected in the pull-down menu 4015 of Fig. 88, the check table history data of the check table revision history data table 3709b of the  
15 step-monitoring server 3300a is downloaded. The read check table history data is displayed in a check table history dialogue box 4045 for confirming the check table history, such as that shown in Fig. 95.

Subsequently, an in-processing data input process  
20 executed by the input system clients 3201 to 3208 will be explained with reference to the flowcharts of Fig. 81 to Fig. 84. In Fig. 81, when the operators of the input system (assembly steps 3101 to 3103, check steps 3104 to 3106, repair step 3110, product check step 3111) switch the power of the  
25 input system clients 3201 to 3208 ON (step S1), the program

for production management system 3607b stored in the recording medium 3607 is opened into the RAM 3605 and activated, whereby the icon selection screen shown in Fig. 85 is displayed in the display section 3602 (step S2). When the in-processing input program 3602a is selected in this icon selection screen (step S3), the in-processing input program 3707c is downloaded from the step-monitoring server 3300a and stored in the RAM 3605 (step S4).

When the in-processing input program 3707c stored in the RAM 3605 is activated (step S5), the master data of the input supervisor master table 3708g (employee No., name, password) is downloaded from the step-monitoring server 3300a and stored in the RAM 3605 (step S6). A password input screen such as that shown in Fig. 86 is displayed in the display section 3602 (step S7). Boxes for entering the "employee No." and the "password" are also displayed in the password input screen of Fig. 86. The operators enter their passwords and employee numbers (step S8).

The input password and employee number are compared with the master data (password and employee no.) of the input supervisor master table 3708g stored in the RAM 3605 (step S9) to determine whether they are correct (step S10). When the input password and employee number are correct, processing proceeds to step S11. On the other hand, when the input password and employee number are incorrect, the processing

returns to step S8 and the password and employee number are entered a second time.

In step S11, text file data (activation conditions data and input conditions data) of the activation conditions setting files and input conditions setting files which are stored in the recording medium 3607 are read out, and are stored in the RAM 3605 (step S12). A data input screen such as that shown above in Fig. 87 is displayed (step S13), and the activation conditions data of the activation conditions file stored in the RAM 3605 is displayed in the "factory name 4001", "production step 4002", "line No. 4003", "name of machine type 4004" and "name of step 4005" boxes of the input screen (step S14).

The master data of the target machine type in the defect master table 3708u ("Name of machine type", "Name of step", "No.", "Defective item", "Defect content 1", "Defect content 2", and "Defect content 3"), the repair contents master table 3708i ("No.", "Repair contents 1", "Repair contents 2", and "Repair 3") and the individual step operation settings master table 3708n ("No.", "Name of step", "Display Process", "Checker", and "Tab Control") are downloaded from the step-monitoring server 3300a (step S15) and stored in the RAM 3605 (step S16). Thereafter, the barcode table (machine type code and installation serial number) which is appended to the assembly product is read by using a barcode reader, and

"machine type code 4007" and "Installation serial number 4008" are entered in the display box (step S17).

Subsequently, in Fig. 82, the data is compared with the "tab control" data which corresponds the automated steps (stored as activation conditions data of the activation conditions file) of the master data of the individual step operation settings master table 3708n stored in the RAM 3605, and it is determined whether to Start (step S21). When it is determined to Start, the master data from the unit name master table 3708q ("No.", "Unit No.", "Unit symbol", "Unit name", "Unit sector", "Machine type code", "Unit machine type code", and "Existence of Unit check table") and the check table item master table 3708p ("Machine type code", "No.", "Name of step", "Check item", "Stipulation", and "Input type") which matches the read machine type code is stored in the RAM 3605 (step S22) and the processing shifts to step S24.

On the other hand, when it is determined in step S21 that the tab control corresponding to the automated step is not Start, the master data which matches the main data table 3709d ("Factory name", "Product field", "Name of machine type", "Production step", "Line No.", "Machine type code", "Installation serial number", "Machine number", "Installation start date", "Installation start time", "Completion date", "Completion time", LineoutFlg", "Process input hold Flg", "Manufacturing check input hold Flg",

Manufacturing check Sample Flg", "Market generation flg",  
"Input date", "Number of defects", "Number of something  
stranges", "Number of non-reoccurrences", "Number of  
redetections", "Number of information handlings", "Special  
5 stipulations", and "Date of Latest update"), the unit  
management No. data table 3709c ("Installation serial number",  
Machine type code", "Unit No.", "Unit symbol", "Unit sector",  
"Production step", "Unit Name", and "Unit management No."),  
the unit check table data table 3709i ("Unit management number",  
10 "Unit symbol", "Unit sector", "Production step", "No.",  
"Classification", "Check item", "Stipulation", "Check  
method", "Determination", and "Redetection mark"), and the  
in-processing defect table 3709f ("Factory name", "Product  
field", "Name of machine type", "Production step", "Line No.",  
15 "Machine type code", "Installation serial number", "Machine  
number", "defect serial number", "Machine number", "Defective  
sector", "Number of reoccurrences", "Date of Occurrence",  
"Time of Occurrence", "Name of step", "Defective Item",  
"Defect content 1", "Defect content 2", "Defect content 3",  
20 "Lineout", "Lank", "Something strange", "Responsible sector  
1", "Responsible sector 2", "Responsible sector 3", "Non-  
reoccurrence", "Cause of defect", "Repair contents 1",  
"Repair contents 2", "Repair contents 3", "Repair Date",  
"Repair time", "Repair supervisor", "Reoccurrence prevention  
25 Contents", "Date of Countermeasure", "Time of Countermeasure",



"Countermeasure supervisor" and "Date of Latest update") is downloaded and stored in the RAM 3605 (step S23). The processing then shifts to step S24.

In step S24, the "tab control" data of the individual  
5 step settings master table 3708n stored in the RAM 3605 which corresponds with the automatically set step is determined. When the "tab control" is "start step", the processing shifts to step S25 and the master data of the check table item master table 3708p stored in the RAM 3605 is displayed in the check  
10 table data input block 4050. In addition, the master data of the unit name master table 3708q stored in the RAM 3605 is displayed in the unit data input block 4051 (step S25). Then, the defect content is entered in the defect data input block 4020 (step S35), the "Store F1" key is pressed, and all the  
15 data entered into the screen is stored in the corresponding data table of the step-monitoring server 3300a (step S36). Thereafter, processing shifts to step S45. More specifically, the data input to the main data input block 4016 and the defect content data input block 4020 are stored in the defect content  
20 master table 3708u.

In step S24, when the "tab control" is "Unit", the master data of the main data table 3709d stored in the RAM 3605 is displayed in the main data input block 4016, the master data of the unit data table 3709k stored in the RAM 3605 is displayed  
25 in the unit data input block 4051, and the master data of the

in-processing defect data table 3709f stored in the RAM 3605 is displayed in the defect data input block 4020. Fig. 98 shows an example of the screen display in this case, in which the unit data input block 4051 is displayed.

5           The barcode data on the "unit management No." which is pasted to the unit is read by using a barcode reader in the machine type code input box of the unit data input block 4051 on the screen (step S27).

Subsequently, the defect content is entered in the  
10   defect content input block 1020 (step S35). The "F1" key is pressed, and data of the main data input block 4016, the unit data input block 4051 and the defect data input block 4020 are stored in the corresponding data tables of the step-  
monitoring server 3300a (step S37). Thereafter, the  
15   processing shifts to step S44. More specifically, the data entered in the main data input block 4016 and the unit data input block 4051 are stored in the unit data table 3709k, and the data entered in the main data input block 4016 and the defect content data input block 4120 are stored in the defect  
20   content master table 3708u.

When the "tab control" in step S24 is "check table", the master data of the main data table 3709d is displayed in the main data input block 4016, the data of the check table of the target step of the check table data table 3709i stored  
25   in the RAM 3605 is displayed in the check table data input

block 4050, and the data of the i0 defect data table 3709f stored in the RAM 3605 is displayed in the defect content data input block 4051 (step S28). Fig. 99 shows an example of the screen display in this case, in which the check table data input block 1050 is displayed. When an item is unsuccessful, the check table data of the target step is entered in the defect data input block 4051. Data is only entered in the check table when there is an unsuccessful item; successful items are not entered. As explained later, "pass" is automatically entered in the empty boxes.

Subsequently, the defect content data is entered in the defect data input block 4020 (step S35). It is determined whether there is an unsuccessful item in the check table data of the check table data input block 4050 (step S38). When there is an unsuccessful item in this check table data, the "store F1" key is pressed and the data on the screen is stored in the corresponding data table of the step-monitoring server 3300a (step S39). The processing then proceeds to step S44. On the other hand, when there is no unsuccessful item in the check table data in step S44, the "automatic store F8" key is pressed, the word "pass" is entered in the empty items in the check table of the check table data input block, and the data on the screen is stored in the corresponding data table of the step-monitoring server 3300a (step S40). The processing then shifts to step S45. More specifically, the

data input in the main data input block 4016 and the retrieval table data input block 4050 are stored in the check table data table 3709i.

When the "tab control" in step S24 is "Unit + Check table",  
5 the data of the main data table 3709d stored in the RAM 3605 is displayed in the main data input block 4016, the data of the target step of the check table data table 3709i stored in the RAM 3605 is displayed in the check table data input block 4050, and the data of the in-processing defect content  
10 table 3709f is displayed in the defect content data input block 4051 (step S30). Fig. 96 shows an example of the screen display in this case, in which the unit data input block 4051 and the check table data input block 4050 are displayed.

The barcode data on the "unit management No." which is  
15 pasted to the unit is read by using a barcode reader in the machine type code input box of the unit input box 4051 (step S31). When there is an unsuccessful item, the check table data of the target step of the check table data input block 4050 is input (step S32). Thereafter, the defect content is input  
20 in the defect data input block 4020 (step S35).

It is determined whether there is an unsuccessful item in the check table data of the check table data input block 4050 (step S38). When there is an unsuccessful item in the check table data, the "store F1" key is pressed and the data  
25 on the screen is stored in the corresponding data table of

the step-monitoring server 3300a (step S39). Then, the processing shifts to step S44. Specifically, the data input in the main data input block 4016 and the defect data input block 4020 is stored in the defect content master table 3708u, the data input in the main data input block 4016 and the retrieval table data input block 4050 is stored in the check table data table 3709i, and the data input in the main data input block 4016 and the unit data input block 4051 is stored in the unit data table 3709k.

On the other hand, when there is no unsuccessful item in the check table data in step S44, the "automatic store F8" key 4032 is pressed, the word "pass" is entered in the empty items in the check table of the check table data input block, and the data on the screen is stored in the corresponding data table of the step-monitoring server 3300a (step S40). The processing then shifts to step S45.

When the "tab control" in step S24 is "End", the main data of the main data table 3709d stored in the RAM 3605 is displayed in the main data input block 4016, the check table data of the target process of the check table data table 3709i stored in the RAM 3605 is displayed in the check table data input block 4050, and the master data of the in-processing defect content data table 3709f stored in the RAM 3605 is displayed in the defect data input block 4051 (step S33).

The check table data of the target process is input in

the check table data input block 4050 (step S34). Thereafter,  
the defect content is input in the defect data input block  
4020. The "complete F5" key is pressed (step S41) and it is  
determined whether there is any input leak (step S42). When  
5 there is an input leak, a request to deal with the input leak  
is sent to a repair-man or a relief-man (a person who implements  
countermeasures when trouble has occurred). On the other hand,  
when there is no input leak, the completion date data is  
automatically entered in the "completion date 4012" input box  
10 on the screen, and the completion time data is automatically  
entered in the "completion time 4013" input box (step S43).  
The "automatic store F8" key 4032 is pressed and the word "pass"  
is entered in the empty items in the check table of the check  
table data input block, and the data on the screen is stored  
15 in the corresponding data table of the step-monitoring server  
3300a (step S44). The processing then shifts to step S45.

In step S45, defect data relating to the defect content  
data being input in the defect content data input block 4051  
such as the number of something stranges, the number of  
20 reoccurrences, the number of information handlings, and the  
total number of defects, is totalled and stored (written) in  
the appropriate place in the main data table 3709d of the  
step-monitoring server 3300a with the production step, the  
machine type code and the installation serial number as the  
25 keys (step S45).

The data in the data input portion on the screen is deleted and the processing shifts to step S48. When there is no command to end the program, the replacement returns to step S17 of Fig. 81 and the machine type code and installation serial number of the next assembly product on the line are input.

The input of the defect content in the step S35 described above will be explained in detail based on the flowchart of Fig. 84. In Fig. 84, it is firstly determined whether there are any defect contents (step S50). When there is no defect content, the processing shifts to step S56. On the other hand, when there is a defect content, the processing shifts to step S51 in which the line operator, the repair man and the relief man input the defect content in the defect data input block 4020 (step S51). Then, the repair man and the relief man determine whether there is a target for the review request (step S52). When there is no review request target, the processing shifts to step S56. On the other hand, when there is a review request target, the processing shifts to step S53, in which the review request data is entered in the link box 4053 of the defect content data input block 4020. It is determined whether to send a review request alarm mail (step S54). When a review request alarm mail is not sent, the processing shifts to step S56. On the other hand, when a review request alarm mail is sent, the setting is changed to "send review request alarm mail" and the processing shifts to step

S56. Here, when the setting is changed to "send review request alarm mail", the mail transmission flag in the in-processing defect content data table 3709f is set to "1" (transmission target). In step S56, after the machine number data has been input in the machine number input target step, the processing returns to the start.

The management system client 3600 can add, delete and change the check items, stipulations and input types of the check table item master table 3708p at any time. The revision history of the check table item master table 3708p is saved in the check table revision history data table 3709d. The contents of data stored in the check table revision history data table 3709d can be confirmed by the clients.

As described above, when the "tab control" in the individual step operation setting master table 3708m is "Start (first step)", the check items and the like of the check table item master table 3708p are displayed (see step S22 and step S25). The displayed check items and the like of the check table are stored in the check table item data table 3709i (see step S36) and the check items and data and the like of the check table item data table 3709i are displayed in the check table (see step S23 and step S28) in the subsequent steps. The check table which the data is input to in each step is stored in the check table item data table 3709i (see step S39 and step S40) and the same process is repeated until the final step.



Therefore, the same check items as those of the check table itemmaster table 3708p can be used for the body to be assembled from the first step until the final step (i.e. until the product is completely assembled). That is, the result of adding, deleting and changing the check items, stipulations, and input types of the check table item master table 3708p can be reflected in the next body to be assembled. Consequently, no irregular state occurs in the next step after the check table item data table 3709i has been revised.

#### 10 Step Monitoring and Alarm Processes Executed by Output System Client

Step monitoring and alarm processes executed by the output system clients will be explained based on the flowcharts of Fig. 100 to Fig. 105 and with reference to the examples of screen displays in the in-processing data input process of Fig. 106 to Fig. 124. Fig. 100 to Fig. 105 are flowcharts showing step monitoring and alarm processes executed by the output system clients, and Fig. 106 to Fig. 124 are diagrams showing examples of screen displays in the in-processing data input processes.

In the step-monitoring/alarm processing, the clients 3501 to 3503 of the manufacturing and production check section 3401, the component check section 3402, and the manufacturing technical section 3403 send retrieval requests to the step-monitoring server 3300a, and the chronologically process

and display and the like the retrieved data sent from the step-monitoring server 3300a.

Fig. 106 is an example of a display screen 5000 displayed when the step-monitoring/alarm program 3707d has been activated. In Fig. 106, reference numeral 5001 represents a key for displaying the data duration of the selected machine type. When the key 5001 is pressed, the data duration of the selected machine type is displayed. Reference numeral 5002 represents a product field selection box for selecting the "product field" for retrieval, reference numeral 5003 represents a machine type selection box for selecting the "machine type" to be retrieved, reference numeral 5004 represents a machine code selection box for selecting the "machine code" to be retrieved, and reference numeral 5005 represents an output category selection box for selecting an output target. The output target is selected from "that day's production and quality results information", "defect state in each process", "occurrence state for each defective item", "occurrence state for each responsible sector", "occurrence state for each link", "line reject/cancel state" and "occurrence state for each type of defect" which are displayed in the output category selection box 5105.

"That day's production and quality results information" comprises information for determining the disparity and variation between quality results and objects. "Defect state

in each process" comprises information for determining shifts and tendencies of the occurrence state of defects in each process. "Occurrence state for each defective item" is for determining shifts and tendencies of the occurrence state of defects in each item. "Occurrence state for each link" is for determining shifts and tendencies of the occurrence state of defects of each link. "Line reject/cancel state" is for determining shifts and tendencies in the line rejects and cancellation state. "Occurrence state for each type of defect" is for determining shifts and tendencies of the occurrence state for each type of defect. This output category (output target) can be selected before and after data is retrieved.

Reference numeral 5006 represents a calendar for selecting the "date" of the retrieval target. Reference numeral 5007 represents a date specification box for selecting the "date" of the retrieval target. Either of the calendar 5006 and the date specification box 5007 can be used to specify the "date" of the retrieval target. Reference numeral 5008 represents a "retrieval interval" key for specifying the data retrieval interval, reference numeral 5009 represents an "alarm conditions setting" key for setting alarm conditions, reference numeral 5010 represents an "alarm status confirmation" key for confirming the alarm status, reference numeral 5011 represents a "retrieval conditions" key for

executing retrieval, reference numeral 5012 represents a  
"table soft open" key for opening data to a table calculation  
software, reference numeral 5013 represents a "print" key for  
printing the data displayed on the screen, and reference  
5 numeral 5104 represents an alarm setting box for selecting  
alarm generate/non-generate. Reference numeral 5015  
represents a display reference box for selecting whether to  
display the information with "date of defect occurrence" as  
the reference or with "completion date of machine" as the  
10 reference. The display reference box 5015 may be set before  
or after retrieval.

When the "retrieval interval" key 5109 has been selected,  
a subscreen 5020 for setting the update method shown in Fig.  
107 is displayed over the screen of Fig. 106. In the subscreen  
15 5020, the operator selects whether to automatically update  
the retrieval of information and sets the intervals (in  
minutes) at which the retrieval is to be automatically updated.  
Automatic retrieval is a function whereby information is  
automatically retrieved at set time intervals and the latest  
20 information is displayed on the screen. In the example shown  
in Fig. 106, the update method is set to "update automatically"  
and the automatic update interval is set to one minute. When  
the information is automatically updated every one minute in  
this way, the output system clients 3501 to 3503 transmits  
25 requests to read the quality data to the step-monitoring server

3300a every one minute, extract the quality data from the step-monitoring server 3300a every one minute, and update the quality data.

Subsequently, a method for setting the alarm will be explained. There is an individual alarm and a common alarm (serious problem). The common alarm is used to speed up the quality improvement by linking with the relevant division, and the individual alarm is used in confirming states such as quality improvement, quality confirmation, correction confirmation, quality improvement result confirmation, and the like.

In the screen of Fig. 106, when the alarm conditions setting key 5009 is selected, for example, the alarm conditions setting guide screen 5021 shown in Fig. 108 is displayed. In Fig. 108, reference numeral 5023 represents an "individual alarm setting" key for setting the individual alarm, and reference numeral 5024 represents a "common alarm setting key" for setting the common alarm. Fig. 108 shows a case where the individual alarm setting key 5023 has been selected, whereby an individual alarm setting box 5022 is displayed. The supervisor inputs the alarm conditions (alarm item, alarm reference) and the alarm value into the alarm setting box 5022 for the individual alarm and presses the "Set OK" button, whereby the individual alarm is set. The set data of the set individual alarm is stored in the recording medium 3607.

When the "common alarm setting" key 5022 is selected in the alarm conditions setting guide screen 5021, the password input screen shown in Fig. 91 is displayed. When the correct password is entered into the password input screen, the common alarm setting box 5025 of Fig. 109 is for example displayed. When the supervisor inputs the alarm conditions (alarm item, alarm reference) and the alarm value into the common alarm setting box 5025 and presses the "Set OK" button, the common alarm is set and the set common alarm data is transferred to the step-monitoring server 3300a. The step-monitoring server 3300a receives the common alarm data and stores it in the alarm value master table 3708t. A password is required in order to prevent any operator from setting the individual step operations. Only someone who is authorized to know the password can set the individual step operations.

The method for setting the alarm will be explained more specifically. In the alarm setting boxes 5022 and 5025, the supervisor specifies the items (alarm conditions {reference}) for which he wishes to sound the alarm from among "defective sector" to "supervisor", and inputs the number of occurrences of the specified items which will trigger the alarm in the "alarm value" box. The alarm will sound when the number of occurrences reaches the number specified in the alarm conditions. In the case where the alarm is to be sounded each time a specified item occurs rather than when the item has

occurred a specified number of times, the symbol "" is entered in the "alarm value" box. For example, when the alarm value is "3", the alarm will sound when the specified alarm conditions have occurred three times and will thereafter sound each time the specified alarm conditions occur.

Subsequently, the step-monitoring/alarm processing will be explained based on the flowcharts of Fig. 100 to Fig. 105. In Fig. 100, when the supervisors of the manufacturing and production check section 3401, the component check section 3402, and the manufacturing technical section 3403 switch ON the power of the output system clients 3501 to 3503 (step S61), the program for production management system 3607b stored in the recording medium 3607 is opened into the RAM 3605 and activated, whereby the icon selection screen shown in Fig. 85 is displayed in the display section 3602 (step S62). When the step-monitoring/alarm program 3602b is selected from the icon selection screen (step S63), the step-monitoring/alarm program 3707d is downloaded from the step-monitoring server 3300a and stored in the RAM 3605 (step S64).

When the step-monitoring/alarm program 3708c stored in the RAM 3605 is activated (step S65), the master data of the input supervisor master table 3708g (employee No., name, password) is downloaded from the step-monitoring server 3300a and stored in the RAM 3605 (step S66). A password input screen such as that shown in Fig. 86 is displayed in the display

section 3602 (step S66). The operators enter their passwords and employee numbers (step S67).

The password and employee number which have been input are compared with the master data (employee no., name, password) of the input supervisor master table 3708g stored in the RAM 3605 (step S68) to determine whether they are correct (step S68). When the input password and employee number are correct, processing proceeds to step S71. On the other hand, when the input password and employee number are incorrect, the processing returns to step S68 and the password and employee number are entered a second time.

Then, in step S71, master data from the product field master table 3708c (product field) and the name of machine type master table 3708r ("name of machine type", "Product field", "Production point", "Date when production started", "Server Name", "IP\_Address", "DBName", "Head\_NO\_Flg" and "Mail Transmission") of the step-monitoring server 3300a are downloaded and stored in the RAM 3605 (step S72). As a result, a screen such as that shown in Fig. 106 is displayed (step S73). The product field master data of the product field master table 3708c is displayed in the "product field selection box" of the output screen, the name of machine type master data of the name of machine type master table 3708a is displayed in the "machine type selection box" 5003, and the machine type code data of the machine type code name master table 3708a



is displayed in the "machine type code selection box" 5004. Furthermore, the output category data which is written in the step-monitoring/alarm program 3707c is displayed in the "output category selection box" 5005.

5       The product field of the "product field selection box" 5002 is selected (step S74) and the name of machine type is selected in the "machine type selection box" 5003 (step S75). The individual alarm conditions setting file which is stored in the recording medium 3607 is read (step S76) and the  
10 individual alarm conditions setting data is stored in the RAM 3605 (step S77). The output category is selected in the "output category selection box" 5005 (step S78) and the date is selected in the calendar 5006 (step S79).

Subsequently, in step S80 of Fig. 101, it is determined  
15 whether the retrieval conditions which are set in the "set update method" dialogue box 5020 (see Fig. 107) specify automatic retrieval or manual retrieval (step S80).

When it is determined that automatic retrieval has been set, it is determined whether the predetermined time interval  
20 has elapsed (step S81). When the predetermined time interval has elapsed, the processing shifts to step S81. On the other hand, when manual retrieval has been set, it is determined whether the execute retrieval key 5011 has been pressed (step S82). When the execute retrieval key 5001 has been pressed,  
25 the processing shifts to step S83.

202503-00100  
10000-2300000

In step S83, the alarm value master table 3708t ("No.", "Management sector", "Defective sector", "Name of step", "Defective Item", "Defect content 1", "Defect content 2", "Defect content 3", "LineOut", "Something strange", "Lank", "Responsible sector 1", "Responsible sector 2", "Responsible sector 3", "Repair supervisor", "Reoccurrence Prevention Contents", "Countermeasure supervisor", "Alarm value", "Alarm result", "Alarm time", and "Date of Mail transmission") of the step-monitoring server 3300a is downloaded (step S83) and stored in the RAM 3605 (step S84).

Quality data of the machine type and date which were specified in steps S74, S75, S78 and S79 are downloaded from the main data table 3709d ("No.", "Management sector", "Defective sector", "Name of step", "Defective Item", "Defect content 1", "Defect content 2", "Defect content 3", "LineOut", "Something strange", "Lank", "Responsible sector 1", "Responsible sector 2", "Responsible sector 3", "Repair supervisor", "Reoccurrence Prevention Contents", "Countermeasure supervisor", "Alarm value", "Alarm result", "Alarm time", and "Date of Mail transmission") and the in-processing defect content data table 3709f (name of machine type, factory name, No., defective item, defect content 1, defect content 2, defect content 3) of the step-monitoring server 3300a (step S85) and stored in the RAM 3605 (step S86). The quality data stored in the RAM 3605 is totalled in

accordance with the output target selected in the "output category selection box" 5005 and the total result is stored in the RAM 3605 (step S87).

The processing contents of the above-mentioned step S87  
5 will be explained more specifically based on the flowchart of Fig. 103. In Fig. 103, the output target selected in the "output category selection box" 5005 is determined (step S102), and when the output target selected in the "output category selection box" 5005 is "that day's production and quality  
10 results information", total values of the number of defects, the number of completions, the number of straight-throughs, the number of defectives, PQ value and the number of line rejects are calculated (step S103). The calculated total values are stored in chronological order in the RAM 3605 (step  
15 S104).

On the other hand, when the output target selected in the "output category selection box" 5005 is other than "that day's production and quality results information", the quality data for each of the items of the selected output target  
20 are arranged in order of the their frequency (step S105), and the arranged data are totalled in chronological order (step S106). Then, the totalled results are stored in the RAM 3605 in chronological order (step S107). Thereafter, in the step S88 of Fig. 101, the quality data and chronological totalled  
25 results which are RAM 3605 are displayed on the screen (step

S88).

Fig. 110 shows an example of a screen display of quality data and chronological total results. In the example shown in Fig. 110, a list of the quality data (retrieved data and raw data) corresponding to the specified "name of machine type, machine type code and specified date" is displayed in the retrieved data display box 5031. The retrieved data display box 5031 contains items such as "No.", "installation serial number", "machine no.", "head no.", "redetection", "occurrence date", "process name", "defective item", "defect content", "line reject", "lank", "responsible sector", "cause of defect", "repair contents", "repair date", "reoccurrence prevention contents", "date of countermeasure", "time of countermeasure", and "supervisor". The operator can freely set which of these items to display in the retrieved data display box 5031. The operator can choose to display or not display data of specified items (rows) by specifying an item (row) in the retrieved data display box 5031 and pressing the "select display/do not display row" key 3203.

A list of the chronological total results is displayed in an output target display box 5032. The (calculation) conditions of the total number of defects displayed in the output target display box 5032 are specified in a check box 5034. A number of defects which excludes "something stranges" and "non-reoccurrences" can be obtained by selecting "do not

include something stranges" and "do not include reoccurrences" in the check box 5034. The chronological data of an item selected from the items displayed in the output target display box 5032 is displayed in broken-line graph format in a graph display box 5033. More than one item may be displayed in broken-line graph format in a graph display box 5033, and chronological data of multiple items selected from the items displayed in the output target display box 5032 can be displayed. "Number of something stranges", "number of non-reoccurrences", "number of redetections" and "number of input holds" are displayed in a number display box 5030.

Fig. 111 shows a case when "all" is selected as the "machine type code", "May 1(Step S1)," is selected as the specified date, and "that day's production and quality results information" is selected as the "output category". In the output target display box 5032 of Fig. 111, "Total number", "ratio", "line graph", "number of occurrences per time intervals (6 a.m. to 8 p.m.) are displayed in correspondence with the data items (number of products {completions}, number of straight-throughs, number of defects, straight-through rate, defective rating, PQ value, number of rejects). Furthermore, the graph display box 5033 shows an example of the graph display when "number of product completions" is selected in the output target display box 5020.

The method for calculating the data items (1. number

of products {completions}, 2. number of straight-throughs, 3. number of defects, 4. straight-through rate, 5. defective rating, 6. PQ value, 7. number of rejects) displayed in the output target display box 5032 in the case when "that day's production and quality results information" is selected as the output category in the "output category selection box" 5005 will be explained in detail.

#### 1. Number of completed products

The number of occurrences where "completion date" (or "completion time") is entered in main data table 3709d is counted and the total is displayed in the "Total" item. Further, (total number of completed products) (number of completed products) \*100 is displayed numerically in the "ratio" item. The total result of the above "ratio" is displayed in graph format in the "line graph" item. Moreover, the number of shifts in the number of occurrences per time interval on the specified date is displayed in the "number of occurrences per time interval" item. This time interval can be set to one-hour or thirty minutes (the screen display shows a one-hour interval). The "number of occurrences per time interval" is counted by using the "completion time" of the main data table 3709d.

#### 2. Number of straight-throughs

The number calculated by (total number of completed products) - (count number of products for which "number of

defects" in the main data table is entered) is displayed in the "total" item. The numerical result of (number of straight-throughs number of completed products) \*100 is displayed in the "ratio" item. The calculated total of the ratio is displayed in the "line graph" item. The reference length of the "line graph" is the above "number of completed products". The "number of occurrences per time interval" is counted by using the "completion time" of the main data table 3709d to count the number of completed products.

### 3. Number of defects

The calculated result of (count value of the "defective item" in the in-processing defect data table 3709f) - (count value of items having a flag for "something strange" or "non-reoccurrence" in the in-processing defect data table 3709f) is displayed numerically as the "total" of the "number of defects". In this case, as shown in Fig. 112, check marks for "do not include something strange" and "do not include non-reoccurrences" are inserted beforehand in the check box 5034 prior to activation, hence the above equation for calculation. The equation calculated when these check marks are not inserted will be explained later. ("Total" number of defects) ("total" number of completed products) \*100 is displayed numerically in the "ratio" item. The result of the above "ratio" is displayed in graph format in the "line graph" item. The "number of occurrences per time interval is

obtained by counting and displaying the number of defects based on the "occurrence time" in the in-processing defect content data table 3709f.

When the mark for "do not include something stranges" is not inserted in the check box 5034, the "number of something stranges" in the main data table 3709d is also used, whereby the equation for calculating "number of defects" becomes "number of defects" + "number of something stranges". When the mark for "do not include non-reoccurrences" is not inserted in the check box 5034, the "number of non-reoccurrences" in the main data table 3709d is also used, whereby the equation for calculating "number of defects" becomes "number of defects" + "number of non-reoccurrences".

When the mark for "do not include redetections" is not inserted in the check box 5034, the "number of redetections" in the main data table 3709d is also used, whereby the equation for calculating "number of defects" becomes "number of defects" + "number of redetections". Multiple items can be selected in the check box 5034. In each case, the calculation for "number of defects" becomes "number of defects" - (added value of checked cases). Fig. 72 shows an example of the display when "do not include something stranges", "do not include reoccurrences" and "do not include redetections" are not checked in the check box 5034.

4. Straight-through rate



5 ("Total" number of straight-throughs) ("total" number of completed products) \*100 is displayed numerically as the "Total". The "ratio" is the same as the "total". The "ratio" is displayed in graph format in the "line graph" item. The display method is the same as that described above. The result per hour is displayed numerically in each hourly cell by calculating (hourly number of straight-throughs) (hourly number of completed products)\*100.

#### 5. Defective rating

10 The result of the calculation ("total number of defects") (total number of completed products) is displayed in the "total" item. The same number is displayed in the "ratio" item. The "line graph" is not displayed. The result of the calculation (hourly result of "number of defects")  
15 (hourly result of "number of completed products") is displayed in each cell of "number of occurrences per hour".

#### 6. PQ value

20 The result of the calculation (number of "defective items" in the in-processing defect data table) (total number of "completed products") is displayed in the "total" item. The same number is displayed in "ratio". The "line graph" is not displayed. The numbers displayed in the specified hourly and daily cells of the "hourly number of occurrences" are obtained from the result of the calculation (value obtained  
25 by counting the "defective item" in the "in-processing defect

data table" per specified hours/days by using the "occurrence time" (or "occurrence date")) (value obtained by counting the "number of completed products" per specified hours/days).

#### 7. Number of rejects

5           The data in the main data table 3709d which have an entry for "line output Flg" ("1" representing a line rejection, "2" representing a reject which has been returned to the line) are counted and displayed numerically in the "total" box. The result of the calculation ((the above "Total" number") (the  
10 "total" number of completed products))\*100 is displayed in the "ratio" box. A graph based on the "ratio" is displayed in the "line graph" box. the "completion time" (or "completion date") in the main data table 3709d when there is a "line out" in the main data table 3709d is displayed in  
15 the hourly and daily cells of the "number of occurrences per hour" box.

Fig. 112 shows an example of the output screen in the case where "in-processing defect occurrence state" has been selected in the output category selection box 5005. As shown  
20 in Fig. 112, when "in-processing defect occurrence state" has been selected, the "number of occurrences", "line graph", "ratio", and "hourly number of occurrences" are displayed in the output target display box 5032 for each of the step names (total, image check 01, adjustment step 02, electrical check  
25 01, completion check 01).

Here, the "step names" are counted by using the "step name", "occurrence date", and "occurrence time" in the in-processing defect content data table 3709f. The number of step names and the number of totals are displayed. The number  
5 of occurrences here is obtained by counting the "step names" \* "occurrence date". The "ratio" is calculated by the equation (number of step names Total number of occurrences)\*100. The "ratio" of the Total is "Total number of occurrences Total number of occurrences"\*100. The "line  
10 graph" is obtained by using this "ratio". The number of occurrences at each time is counted for "step names" \* "occurrence date" \* "occurrence time" and displayed numerically in each cell.

As described above, by selecting "do not include  
15 something strange" and "do not include non-reoccurrences" in the check box 5034, these can be excluded in counting the number of defects. By selecting "do not include redetections" in the check box 5034, the "redetections" can be excluded from the count of "step names" by using the "redetections" of the  
20 in-processing defect content data table 3709f.

In Fig. 112, a radio button 5035 is provided for selecting the category of data to be displayed in the output target display box 5032. The data of items ("number of occurrences", "defectives" "PQ value") selected by the radio  
25 button 5035 is displayed in the output target display box 5032.

The equation calculated in each case is the same as the "that day's production and quality result information" mentioned above. Fig. 112 shows an example wherein "number of occurrences" has been selected by using the radio button 5035.

5 Fig. 113 shows an example of an output screen which is displayed when "occurrence states for individual defective items" has been selected in the output category selection box 5005. As shown in Fig. 113, when "occurrence states for individual defective items" has been selected, "number of  
10 occurrences", "line graph", "ratio" and "number of occurrences per time interval" for each of the defective item names (total, image defect, display defect, operation defect, carrying defect, installation defect, abnormal sound, and adjustment defect) are displayed in the output target display  
15 box 5032.

The "defective item names" are counted by using the "defective item", "date of occurrence" and "time of occurrence" in the in-processing defect content data table 3709f. The "total" number of occurrences obtained by  
20 totalling the number of occurrences of each item and the number of items is displayed. The number of occurrences is counted by calculating the equation "defective items" \* "date of occurrence". The "ratio" is calculated by the equation (number of cases in the steps Total number of cases)\*100. The  
25 total ratio number becomes (Total number of cases Total

number of cases)\*100. The "line graph" comprises a graph obtained by using the "ratio" number. In "number of cases per time", the number of cases in each time is counted in "defective items" \* "date of occurrence" \* "time of occurrence" and  
5 displayed numerically in each cell.

When "number of cases", "number of defectives" and "PQ value" are selected by the radio button 5035, the contents of the defective items are displayed in correspondence with the selected information. The equations are the same as that  
10 for "that's production and quality result information" described above. Fig. 74 shows an example where "number of cases" has been selected by the radio button 5053.

A number of defects excluding something stranges and non-reoccurrences can be calculated by selecting the check  
15 boxes for "do not include something stranges" and "do not include non-reoccurrences" in the check box 5034. The exclusive equation is the same as that mentioned above. When "do not include redetections" is selected in the check box 5034, "defective items" without the "number of redetections"  
20 entered therein is selected and by using the "number of redetections" of the in-processing defect data table 3709f, and the various calculations are carried out.

Fig. 114 shows an example of a display on an output screen when "occurrence status for individual responsible sector"  
25 is selected in the output category selection box 5005. As

shown in Fig. 114, when "occurrence status for individual responsible sector" is selected, "number of cases", "line graph", "ratio", and "number of cases per time" are displayed in the output target display box 5032 for each of the  
5 responsible sectors (total, garbage, assembly, technology, unknown, non-input responsible sector, and component).

The "total" and "items" of the "responsible sector" are counted by using the "responsible sectors 1, 2 and 3," "date of occurrence" and "time of occurrence" of the in-processing  
10 defect data table 3709f. The "number of cases" of each item displays the total number. The equation counts the "number of cases" by calculating "responsible sectors 1, 2 and 3" \* "date of occurrence". The "ratio" number is calculated by.  
(number of cases in the steps Total number of cases)\*100. The  
15 "line graph" comprises a graph obtained by using this "ratio" number. In "number of cases per time", the number of cases per time is counted in "responsible sectors 1, 2 and 3" \* "date of occurrence" \* "time of occurrence" and displayed numerically in each cell.

20 When "number of cases", "number of defectives" and "PQ value" are selected by the radio button 5035, the contents of the defective items are displayed in correspondence with the selected information. The equations are the same as that for "that's production and quality result information"  
25 described above. Fig. 114 shows an example where "number of

cases" has been selected by the radio button 5053.

A number of defects excluding something stranges and non-reoccurrences can be calculated by selecting the check boxes for "do not include something stranges" and "do not  
5 include non-reoccurrences" in the check box 5034. The exclusive equation is the same as that mentioned above. When "do not include redetections" is selected in the check box 5034, "defective items" without the "number of redetections" entered therein is selected by using the "number of  
10 redetections" of the in-processing defect data table 3709f, and the various calculations are carried out.

Fig. 115 shows an example of a display on an output screen when "line reject/elimination status" has been selected in the output category selection box 5005. As shown in Fig. 115,  
15 when "line reject/elimination status" has been selected, "number of cases", "line graph", "ratio", and "number of cases per time" are displayed in the output target display box 5032 for each of the data items (number of completed products, number of line rejects, number of line eliminations).

20 The "number of completed products", "number of line rejects" and "number of line eliminations" of the "data items" are counted by using the "LineoutFlg", "date of installation start", "time of installation start", "completion date" and "completion time" of the main data table 3709d. The "number  
25 of cases" of the "number of completed products" is the number

of "completion dates" in the main data table 3709d. The "ratio" of the "number of completed products" is divided by the number of "completion dates" in the main data table 3709d and displayed as a percentage. The "number of cases per time" of the "number of completed products" is counted by using the "completion time" of the main data table 3709d. The "number of cases" of the "number of line rejects" counts the "LineoutFlg" \* "Installation start date" of the main data table 3709d. The ratio (percentage) of the "number of line rejects" numerically displays the result of the calculation ((number of line rejects) (number of completed products)) \* 100. The "number of cases per time" of the "number of line rejects" is counted by using the "installation start time" of the main data table 3709d, and is numerically displayed in each time cell. The "number of cases" of "number of line eliminations" is counted by calculating "LineoutFlg" \* "completion date" in the main data table 3709d. The "ratio" (percentage) of the "number of line eliminations" is obtained by calculating the equation (number of cases of "number of line eliminations" number of cases of "number of completed products") \* 100, and the numerical result is displayed. The "number of cases per time" of the "number of line eliminations" is counted by using the "completion time" in the main data table 3709d, and is displayed numerically in each time cell.

25           A number of defects which excludes something strange



and non-reoccurrences can be calculated by selecting the check boxes for "do not include something stranges" and "do not include non-reoccurrences" in the check box 5034. The exclusive equation is the same as that mentioned above. When  
5 "do not include redetections" is selected in the check box 5034, "responsible sectors 1, 2 and 3" without the "number of redetections" entered therein is selected by using the "number of redetections" of the in-processing defect data table 3709f, and the various calculations are carried out.

10 Fig. 116 shows an example of a display on the output screen when "individual defect content occurrence status" has been selected in the output category selection box 5005. As shown in Fig. 116, when "individual defect content occurrence status" has been selected, the "number of cases", "line graph",  
15 "ratio" and "number of cases per time" are displayed in the output target display box 5032 for each of the defect contents (total, vertical white band, scratch, paint unevenness (OPC), color scattering, horizontal black numbers, vertical band, operating section vertical line vertical white and black band,  
20 vertical white numbers, vertical black band).

The "defect content names" are counted by using the "defect contents 1, 2 and 3", the "occurrence date" and "occurrence time" in the in-processing defect content data table 3709f. The "number of cases" of the items and the total  
25 number are displayed. The "ratio" becomes (number of cases

of the contents Total number of cases) \* 100. The total  
"ratio" number becomes (total number of cases total number  
of cases) \* 100. The "line graph" displays this "ratio" number  
in graph format. The "number of cases per time" is obtained  
5 by counting the number of cases in each time by the calculation  
"defect contents 1, 2 and 3" \* "date of occurrence" \* "time  
of occurrence", and these are numerically displayed in each  
cell.

A number of defects which excludes something strange  
10 and non-reoccurrences can be calculated by selecting the check  
boxes for "do not include something stranges" and "do not  
include non-reoccurrences" in the check box 5034. The  
equation is the same as that described above. When "do not  
include redetections" is selected in the check box 5034,  
15 "responsible sectors 1, 2 and 3" without the "number of  
redetections" entered therein is selected by using the "number  
of redetections" of the in-processing defect data table 3709f,  
and the various calculations are carried out.

Fig. 117 shows an example of a display on the output  
20 screen when "repair content status" has been selected in the  
output category selection box 5005. As shown in Fig. 117, when  
"repair content status" has been selected, the "number of  
cases", "line graph", "ratio" and "number of cases per time"  
are displayed in the output target display box 5032 for each  
25 of the defect contents (total, cleaning, replacement,

revision, grease coating, set).

The "repair contents names" are counted by using "repair contents 1, 2 and 3", "repair date", and "repair time" in the in-processing defect data table 3709f. The "number of cases" of the items and the total number of cases are displayed. The calculated to obtain the "ratio" becomes (number of cases of the contents Total number of cases) \* 100. The total "ratio" number becomes (total number of cases total number of cases) \* 100. The "line graph" displays this "ratio" number in graph format. The "number of cases per time" is obtained by counting the number of cases in each time by the calculation "repair contents 1, 2 and 3" \* "repair date" \* "repair time", and these are numerically displayed in each cell.

A number of defects which excludes something strange and non-reoccurrences can be calculated by selecting the check boxes for "do not include something strange" and "do not include non-reoccurrences" in the check box 5034. The equation is the same as that described above. When "do not include redetections" is selected in the check box 5034, "responsible sectors 1, 2 and 3" without the "number of redetections" entered therein is selected by using the "number of redetections" of the in-processing defect data table 3709f, and the various calculations are carried out.

Fig. 118 to Fig. 121 are diagrams showing examples of displays on the output screen when "individual step quality

status" is selected in the output category selection box 5005. As shown in Fig. 118 to Fig. 121, when "individual step quality status" has been selected, "number of cases, defectives, PQ value, and number of units", "line graph", "ratio", "number of cases per time" are displayed in the output target display box 5032 for each of the steps (total, electrical check 01, adjustment check 01, mechanical check 01, image check 01, completion check 01). Fig. 118 shows an example in which "do not include something stranges", "do not include non-reoccurrences" and "do not include redetections" have been selected in the check box 5034, and "number of cases" has been selected in the radio button 5035. Fig. 119 shows an example in which "do not include redetections" has been selected in the check box 5034 and "number of units" has been selected in the radio button 5035. Fig. 120 shows an example in which "do not include something stranges", "do not include non-reoccurrences" and "do not include redetections" have been selected in the check box 5034, and "defectives" has been selected in the radio button 5035. Fig. 121 shows an example in which "do not include redetections" has been selected in the check box 5034 and "PQ value" has been selected in the radio button 5035.

In step S89 of Fig. 101, the identification information conditions setting data stored in the RAM 3605 is compared with the quality data. The specific contents of this process

will be explained based on the flowchart of Fig. 104. In Fig. 104, the first data of the quality data is extracted (step S111) and compared with the alarm reference of the individual alarm conditions data (step S112) in order to determine whether the data corresponds to the alarm reference (step S113). When it is determined that the data does not correspond to the alarm reference, the processing shifts to step S115. On the other hand, when the data does correspond to the reference, the corresponding item and number of cases are stored in the RAM 3605 (step S114) before proceeding to step S115.

In step S115, it is determined whether this is the last quality data, and if so, the process returns. On the other hand, when this is not the last quality data, the next data is extracted (step S116) and the sequence returns to step S112 and the same processes are repeated until the quality data ends.

In step S90 of Fig. 101, the common alarm conditions setting data stored in the RAM 3605 is compared with the quality data. The specific contents of the step S90 will be explained based on the flowchart of Fig. 105. In Fig. 105, the first data of the quality data is extracted (step S121) and compared with the alarm reference (alarm item) of the common alarm conditions data (step S122) in order to determine whether the data corresponds to the alarm reference (step S123). When it is determined that the data does not correspond to the alarm

reference, the processing shifts to step S125. On the other hand, when the data does correspond to the reference, the corresponding item and number of cases are stored in the RAM 3605 (step S124) before proceeding to step S125. In step S125,  
5 it is determined whether this is the last quality data, and if so, the process returns. On the other hand, when this is not the last quality data, the next data is extracted (step S126) and the sequence returns to step S122 and the same processes are repeated until the quality data ends.

10 Then, in the step S91 of Fig. 102 it is determined whether there is any quality data which is caught by the alarm value by referring to items and numbers thereof which correspond to the alarm reference stored in the RAM 3605. When no quality data is caught by the alarm value, the sequence shifts to step  
15 S96. On the other hand, when there is quality data caught by the alarm value, it is determined whether or not "sound the alarm" is set in the alarm sound setting box 5014 (step S92). When "sound the alarm" has been set, the processing shifts to step S93 in which the alarm is sounded from the speaker  
20 3607. In addition, the items and numbers thereof (alarm result status) which correspond to the alarm reference stored in the RAM 3605 are displayed on the screen (step S94). On the other hand, when "sound the alarm" is not set in the alarm sound setting box 5014, the processing shifts to step S94  
25 without sounding the alarm, and the items and numbers thereof

(alarm result status) which correspond to the alarm reference stored in the RAM 3605 are displayed on the screen (step S94).

Fig. 122 and Fig. 124 show examples of screens displaying the alarm result status. Fig. 122 shows an example of the individual alarm generation status, and Fig. 124 shows an example of the common alarm generation status. In Fig. 122 and Fig. 124, the number of generations is displayed in the "result" box. Items which were caught by the alarm value are displayed in red. When an item is selected on this screen, detail alarm contents such as those shown in Fig. 123 are displayed.

Having confirmed the alarm status, the system user presses the close button (step S95) to close the screen displaying the alarm result status. Subsequent processing depends on the operation status of the system user. In step S96, when there has been a key input, the content of the key input is determined. When the "open chart software" key 5012 has been selected, the data on the screen is opened directly onto the sheet of the table-calculating software (step S98). When the print key 5013 has been selected, the data on the screen is printed (step S99). When the "select display/not-display row" key has been pressed, a setting screen for setting whether to display or not-display a row of defect data is displayed, and this screen is used to select items of the defect data (step S100). When the "select

display in single-sheet format" key has been pressed, the contents of the defect data are displayed in single-sheet format (step S101). When a key other than those mentioned above is pressed, another process is executed (step S97).

5           It is determined whether there has been a command to end the program (step S102). If so, the program ends. If not, the processing returns to step S78 of Fig. 100.

#### Alarm Mail Transmission by Management System Client

Alarm mail transmission processes executed by the output  
10   system clients will be explained based on the flowcharts of Fig. 125 to Fig. 129 and with reference to the examples of screen displays during the alarm mail transmission of Fig. 130 to Fig. 135. Fig. 125 to Fig. 129 are flowcharts showing alarm mail transmission processes executed by the output  
15   system clients, and Fig. 130 to Fig. 135 are diagrams showing examples of screen displays during the alarm mail transmission processes.

In alarm mail transmission, the system side is monitored in real time to determine whether defect data which has  
20   occurred during a manufacturing step and is data of a quality problem review request, and alarm setting data which is common to all divisions, have been generated. When such data has been generated, the status of the data is displayed in real time on the screen, and the defect content is e-mailed directly  
25   to the alarm mail transmission target. Consequently, the



supervisor who has received the mail can link-up with the sectors which he is responsible for and related divisions so as to speedily solve the quality problem.

Fig. 130 is an example of a display screen 5000 displayed  
5 on the display section 3802 when the alarm mail transmission program 3807b has been activated. In Fig. 130, reference numeral 6001 represents a key for displaying the data duration of the selected machine type. When the key 6001 is pressed, the data duration of the selected machine type is displayed.  
10 Reference numeral 6002 represents a product field selection box for selecting the "product field" for retrieval, reference numeral 6003 represents a machine type selection box for selecting the "machine type" to be retrieved, reference numeral 6004 represents a machine code selection box for  
15 selecting the "machine code" to be retrieved, and reference numeral 6006 represents a calendar for selecting a "date" for the retrieval.

Reference numeral 6008 represents a "retrieval interval" key for specifying the data retrieval interval.  
20 When the "retrieval interval" key 6008 has been selected, a subscreen for setting the updating method identical to that of Fig. 107 is displayed. In this subscreen the operator selects whether to automatically update the information retrieval, and sets the interval (in minutes) when  
25 automatically updating. Automatic update is a function

whereby the system automatically retrieves information at a predetermined time interval and displays it on the screen without the "execute retrieval" key 6012 having been pressed. The information matching the retrieval conditions can be  
5 retrieved and displayed on the screen by pressing the "execute retrieval" key 6012.

Reference numeral 6009 represents a "set activation time" key for setting the activation conditions. When the "set activation time" key 6009 is selected, a subscreen 6021  
10 for setting the activation time such as that shown in Fig. 133 is displayed on the screen. "Name of target machine type", "mail server" and "name of mail file" are entered in this subscreen 6021, and when "set OK" is selected, the "name of target machine type", "mail server" and "name of mail file"  
15 are set and stored in the recording medium 3807. The "name of target machine type", "mail server" and "name of mail file" are set only when the system first becomes operational and when changing settings.

In Fig. 130, reference numeral 6015 represents an "alarm setting status/result" key for displaying common alarm  
20 setting status and common alarm results, reference numeral 6016 represents a "review request mail status" key for displaying the review request mail status, and reference numeral 6017 represents an "alarm mail destination" key for  
25 displaying the destination of the alarm mail. It is possible

to selectively switch the displays of "alarm setting status/result", the "review request mail status" and the "alarm mail destination" by selecting one of the "alarm setting status/result" key 6015, the "review request mail status" key 5 6016 and the "alarm mail destination" key 6017.

Fig. 130 shows a case where the "alarm setting status/result" key 6015 has been selected and the data of the alarm value master table 3708t is displayed in an alarm setting status/result display region 6018. When the "review request 10 mail status" key 6016 is selected, the data of the in-processing defect content data table 3709f is displayed in a review request mail status display region as shown in Fig. 131. When the "alarm mail destination" key 6017 is selected, the data of the alarm receiver master table 3708o is displayed 15 in an alarm mail destination display region 6020 as shown in Fig. 132. The review request mail is transmitted from the management system client 3600 when "review request" has been input in the "repair step input screen" described above. Fig. 134 shows an example of a single-sheet display screen 6022 20 of defect contents used by the input system clients 3201 to 3208. Fig. 135 shows an example of the review request mail 6022.

Subsequently, the process of transmitting the alarm mail will be explained based on the flowcharts of Fig. 125 to Fig. 25 129. In Fig. 126, when the employee who is responsible for

the management system switches the power of the management system client 3600 ON (step S131), an icon selection screen for selecting a program is displayed (step S132). When the alarm mail transmission program is selected in this icon selection screen (step S133), the alarm mail transmission program 3807b is read from the recording medium 3607 and opened into the RAM 3805, whereby the alarm mail transmission program 3807b is activated (step S135). When the alarm mail transmission program 3807b is activated, a password input screen such as that shown in Fig. 91 is displayed (step S137). The operator enters his password and employee number (step S137).

The input password is compared with a predetermined password (step S139) to determine whether the password is correct (step S140). When the input password is correct, processing proceeds to step S141. On the other hand, when the input password is incorrect, the processing returns to step S138 and the password is entered a second time.

In step S141, the step-monitoring server 3300a downloads master data of the machine type master table 3708r ("name of machine type", "Product field", "Production point", "Date when production started", "Server Name", "IP\_Address", "DBName", "Head\_NO\_Flg" and "Mail Transmission"), the alarm value master table 3708t ("No.", "Management sector", "Defective sector", "Name of step", "Defective Item", "Defect

content 1", "Defect content 2", "Defect content 3", "LineOut",  
"Something strange", "Lank", "Responsible sector 1",  
"Responsible sector 2", "Responsible sector 3", "Repair  
supervisor", "Reoccurrence Prevention Contents",  
5 "Countermeasure supervisor", "Alarm value", "Alarm result",  
"Alarm time", and "Date of Mail transmission"), and the alarm  
receiver master table 3708o ("No.", "Responsible sector 1",  
"Responsible sector 2", "Responsible sector 3", "Notes\_ID",  
"Transmission category") and stores these in the RAM 3605 (step  
10 S141).

A screen such as that shown in Fig. 130 is displayed.  
The master data of the machine type master table 3708r, the  
alarm value master table 3708t, and the alarm receiver master  
table 3708o are displayed in corresponding areas of the screen  
15 (step S142).

The operator then logs in to the server (step S143).  
When the mail password is authenticated as correct, the mail  
server 3300b transmits an affirmative response.

It is determined whether the retrieval conditions which  
20 are set in the "set update method" dialogue box specify  
automatic or manual retrieval (step S150). When automatic  
retrieval is specified, the program shifts to step S151 and  
it is determined whether a specified time interval has elapsed.  
When the specified time interval has elapsed, the program  
25 shifts to step S153. On the other hand, when manual retrieval

is set in step S150, the program shifts to step S152 and it is determined whether the execute retrieval key has been pressed. When the execute retrieval key has been pressed, the program shifts to step S153.

5 In step S153, the quality data (master data) for that day is downloaded from the in-processing defect content data table 3709f ("Factory name", "Product field", "Name of machine type", "Production step", "Line No.", "Machine type code", "Installation serial number", "Machine number", "defect serial number", "Machine number", "Defective sector", "Number of reoccurrences", "Date of Occurrence", "Time of Occurrence", "Name of step", "Defective Item", "Defect content 1", "Defect content 2", "Defect content 3", "Lineout", "Lank", "Something strange", "Responsible sector 1", "Responsible sector 2", 10 "Responsible sector 3", "Non-reoccurrence", "Cause of defect", "Repair contents 1", "Repair contents 2", "Repair contents 3", "Repair Date", "Repair time", "Repair supervisor", "Reoccurrence prevention Contents", "Date of Countermeasure", "Time of Countermeasure", "Countermeasure supervisor", "Date 15 of Latest update", "Mail transmission flag") of the step-monitoring server 3300a and stored in the RAM 3605 (step S153).

It is determined whether there is any quality data for which the mail transmission flag is set to "1" (set to transmit review request mail) (step S154). When there is no quality 25 data for which the mail transmission flag is set to "1", the

process shifts to step S157. On the other hand, when there is quality data for which the mail transmission flag is set to "1", the review request mail is transmitted to the target (the transmission destination specified in the alarm receiver master table 3708o) (step S155). Fig. 135 shows an example of the review request mail. The mail transmission flag of the in-processing defect data table 3709f of the step-monitoring server 3300a is changed to "2" (step S156).

In step S157, the alarm reference of the alarm value master table is compared with the quality data. The specific contents of the step S157 will be explained based on the flowchart of Fig. 128. In Fig. 128, the first data of the quality data is extracted (step S170) and compared with the alarm reference (step S171) in order to determine whether the data matches the alarm reference (step S172). When it is determined that the data does not match the alarm reference, the processing shifts to step S174. On the other hand, when the data does match the alarm reference, the matching item and number of cases are stored in the RAM 3605 (step S173) before proceeding to step S174. In step S174, it is determined whether this is the last quality data, and if so, the process returns. On the other hand, when this is not the last quality data, the next data is extracted (step S175) and the sequence returns to step S171 and the same processes are repeated until the quality data ends.

In the step S158 of Fig. 127, it is determined whether there is any quality data which is caught by the alarm value. When no quality data is caught by the alarm value, the sequence shifts to step S150 of Fig. 126. On the other hand, when there  
5 is quality data caught by the alarm value, the alarm target defect data is arranged and preparations for transmitting the mail are carried out (step S160).

The specific contents of the step S150 will be explained based on the flowchart of Fig. 129. In Fig. 129, the first  
10 quality data for the mail transmission target stored in the RAM 3605 is extracted (step S180). The defect responsible sector of the mail transmission target data is compared with the destination data of the individual responsible sector of the alarm receiver master data (step S181). The mail  
15 transmission target data and the mail destination data are stored in the RAM 3605 (step S182). It is determined whether this is the last quality data (step S183), and if so, the process returns. On the other hand, when this is not the last quality data, the next data is extracted (step S184) and the  
20 sequence returns to step S181 and the same processes are repeated until the quality data ends.

In the step S160 of Fig. 127, the common alarm mail is transmitted to the mail server 3300b in order to transmit the common alarm mail of the defect data to the transmission target  
25 of the common alarm mail (step S160). Thereafter, the mail



server 3300b transmits the common alarm mail to the transmission target.

It is determined whether a command to end the program has been issued (step S162). When no command to end the program has been issued, the program returns to step S150. On the other hand, when a command to end the program has been issued, the alarm result, time and mail transmission date are written in the alarm value table 3708t of the step-monitoring server 3300a (step S163) and the program ends.

As described above, in the second embodiment, the input system clients 3201 to 3208 transmits machine type codes and installation serial numbers appended to the pieces to be assembled, and data such as quality data and check table data, to the step-monitoring server 3300a. The step-monitoring server 3300a stores the data input from the input system clients 3201 to 3208 in the corresponding tables (in-processing defect content data table 3709f, check table data table 3709a, main data table 3709d, etc.). The output system clients 3401 to 3403 specify machine type code and dates, and retrieve data which matches the specified conditions from the corresponding tables of the step-monitoring server 3300a (in-processing defect content data table 3709f and main data table 3709d), and chronologically process and display the retrieved data on the screen in accordance with the output items stipulated in the selected output categories.

Therefore, products which are manufactured on a production and assembly line can be efficiently and speedily managed. Further, since the retrieved data is chronologically processed for output items stipulated by set output targets, the products can be managed in each time band.

The present invention is not limited to the embodiments described above, and various modifications can be made which do not alter the main features of the invention.

The above embodiments described an example of a production line for manufacturing color copiers, but this invention is not limited to this and can be applied in the management of all other types of production lines such as black-and-white copiers, facsimiles, automobiles, and the like.

As described above according to this invention, data relating to production and assembly in each of a plurality of steps of producing and assembling components, units and main bodies is input; and check result data of each of a plurality of steps of checking the components, units and main bodies following the steps of producing and assembling is input. The data input by the first and second input units is held, and retrieval conditions are specified by a retrieval conditions specifying unit. A data retrieving unit retrieves data from that held by the data holding unit based on the retrieval conditions specified by the retrieval conditions

specifying unit. An output target specifying unit specifies an output target for the data retrieved by the data retrieving unit, and a data processing unit chronologically processes the data retrieved by the data retrieving unit based on the  
5 output target specified by the output target specifying unit. An output unit outputs the data processed by the data processing unit. Therefore, products which are manufactured on a production and assembly line can be efficiently and speedily managed.

10 The present document incorporates by reference the entire contents of Japanese priority documents, 11-249182 filed in Japan on September 2, 1999, 2000-232532 filed in Japan on July 31, 2000 and 2000-243459 filed in Japan on August 10, 2000.

15 Although the invention has been described with respect to a specific embodiment for a complete and clear disclosure, the appended claims are not to be thus limited but are to be construed as embodying all modifications and alternative constructions that may occur to one skilled in the art which  
20 fairly fall within the basic teaching herein set forth.

WHAT IS CLAIMED IS:

1. A production management system which manages a) assembly data when one or more components are attached to a product under assembly, b) quality data regarding whether the quality  
5 of said product under assembly is good or bad, and c) check data obtained when said product under assembly is checked based on certain prespecified check items, when obtaining a finished product by attaching one or more components such as parts, units, or other finished products to said product under  
10 assembly on one or more of production assembly lines, said production management system comprising:

a plurality of input sections, provided on said production and assembly lines, which input and output said assembly data, said quality data, said check data, management  
15 numbers with which each of said product under assembly can be identified, and group codes (named as names of product under assembly and a generic name of machine type codes) of said product under assembly obtained by dividing said product under assembly according to their types in a step of assembling said  
20 product under assembly and a checking step of checking said product under assembly according to said check items;

a first storage section which stores said management numbers and said group codes input by said input sections in correlation with the date and time on which assembly of said  
25 product under assembly started and the date and time on which

the assembly of said product under assembly is completed as assembly data;

a second storage section which sequentially stores said check data in correlation with said management numbers and  
5 said group codes;

a third storage section which sequentially stores said quality data in correlation with said management numbers and said group codes;

a first display/selecting section which allows display  
10 and selection of group code of said product under assembly;

a second display/selecting section which allows display and selection of a date and time;

a third display/selecting section which allows display and selection of extraction conditions to extract desired data  
15 out of said check data and said quality data stored in said second and third storage sections and output information related to the extraction conditions;

a retrieving section which retrieves and extracts data stored in said first, second, and third storage sections  
20 according to said group codes of said product under assembly, the specified date and time, and the output information selected by said first, second, third display/selecting sections;

a fourth storage section which stores the information  
25 retrieved and extracted by said retrieving section;

5 a data processing section which chronologically processes the data stored in said fourth storage section based on said group codes of said product under assembly, the specified date and time, and the output information selected by said first, second, third display/selecting sections; and

a first display section which displays the data chronologically processed by said data processing section for each item to be output based on the output information.

10

2. The production management system according to claim 1, wherein said first display section numerically displays the chronological data for the items to be output and converts the chronological data for at least one of the items to be  
15 output to a bar graph.

3. The production management system according to claim 2 further comprising:

a selecting section which selects any of item name of  
20 the items to be output displayed by said first display section; and

a graph preparing section which converts the chronological data for the item selected by said selecting section to a bar graph.

25

4. The production management system according to claim 1,  
further comprising a second display section which displays  
said check data or said quality data extracted by said  
retrieving section and stored in said second or third storage  
5 section.

5. The production management system according to claim 4,  
further comprising a third display section which displays said  
check data or said quality data for only a product under  
10 assembly corresponding to said data displayed by said second  
display section.

6. The production management system according to claim 1,  
further comprising an executing section which allows said  
15 retrieving section to execute, by which any group code of said  
product under assembly, the specified date and time, and the  
output information selected by said first, second, and third  
display/selecting section are uploaded.

20 7. The production management system according to claim 1,  
further comprising an executing section which allows said  
retrieving section to automatically execute at predetermined  
time intervals, by which any group code of the said product  
under assembly, the specified date and time, and the output  
25 information selected by said first, second, and third

display/selecting section are uploaded.

8. The production management system according to claim 1 further comprising:

5 a monitoring/setting section which monitors whether said check data or said quality data extracted by said retrieving section and stored in said second or third storage section is added up to a specified number and sets the data; and

10 a notifying section which notifies of that the information monitored and set by said monitoring/setting section reaches to the specified number of items.

9. A production management system which manages a) assembly  
15 data when components to be attached to a product under assembly are attached to said product under assembly, b) quality data regarding whether the quality of said product under assembly is good or bad, and c) check data obtained when said product under assembly is checked based on certain prespecified check  
20 items, when obtaining a finished product by attaching one or more components such as parts, units, or other finished products to said product under assembly on one or more of production assembly lines, said production management system comprising a host server, an input client, an output client,  
25 wherein



0954052-090700  
000000-25009520

A) said host server has at least (1) a master table of said product under assembly, (2) a quality contents master table, (3) a main data table, (4) a quality contents table, and (5) a check contents table,

5           (1) said master table of said product under assembly stores data for group codes of said product under assembly obtained by dividing said product under assembly for each type,

          (2) said quality contents master table stores data about group codes of said product under assembly and quality items  
10 related to said product under assembly in correlation with each other,

          (3) said main data table stores data about management numbers with which respective said product under assembly can be identified and group codes of said product under assembly  
15 in correlation with line information, such as the data and time on which assembly of said product under assembly is started, and the date and time on which the assembly of said product under assembly is completed on said production assembly line, obtainable by executing their assembly and  
20 checking on said production and assembly line,

          (4) said quality contents table stores data about said management numbers and said group codes of said product under assembly, quality items in said quality contents master table, quality information based on said quality items, its entry  
25 date and time, assembly, checking and fixing steps whose data

is entered in correlation with each other, and

(5) said check contents table stores data about said management numbers and said group codes of said product under assembly in correlation with check items related to said product under assembly and the results of checking based on said check items,

B) said input client displays and inputs previously specified table information from said master table of said product under assembly, said check contents data table, and said quality contents master table transferred from said host server, and transfers the information to said main data table, said quality contents data table, and said check contents data table according to the displayed and entered information,

C) said output client displays a selecting/display control section for said product under assembly, an output type selecting/display control section, a data selecting/display control section, and a data output/display control section on its display section, a data transfer section transfers specified data from said host server, and a data processing section processes the data transferred by said transfer section,

(C1) said selecting/display control section for said product under assembly can display and select any group code of said product under assembly based on the information in said master table of said product under assembly,

(C2) said output type selecting/display control section can display and select items to be output based on the information in said quality contents master table,

(C3) said date display control section can display a  
5 calendar and specify a date,

(C4) said data transfer section transfer the data from said host server based on the conditions selected by said selecting/display control section for said product under assembly, said output type selecting/display control section,  
10 and said date selecting/display control section,

(C5) said data processing section collects the data transferred by said data transfer section for each chronological base, and

(C6) said data output/display control section displays  
15 the chronological data of said data processing section for each item.

10. The production management system according to claim 9, wherein said host server having a check contents master table  
20 which

5) stores a management number with which each of said product under assembly can be identified, said group codes, check items for checking said product under assembly on said production assembly lines, and the checking step that utilises  
25 said check items in a correlated manner,

wherein said input client can display or input information contained in said check contents master table.

11. The production management system according to claim 9,  
5 wherein said host server having a process-wise display/input master table which

6) stores each of the processes on said production and assembly line and said tables in said host server that can be displayed and input by each of said input clients,

10 wherein display or input of information in said input client is limited based on the information contained in said process-wise display/input master table.

12. The production management system according to claim 9,  
15 wherein said data processing section calculates the total number of cases of each data.

13. The production management system according to claim 9,  
wherein said data output display control section prepares a  
20 table of the items related to output type selecting/display control section and number of cases of the items that has been chronologically processed by said data processing section and displays the prepared table.

14. The production management system according to claim 13,  
wherein said data output display control section prepares a  
bar graph of the number of cases of the items that has been  
chronologically processed by said data processing section and  
5 displays the prepared table.

15. The production management system according to claim 13,  
wherein said output client comprises a graph generation  
section which

10 (C7) prepares a graph of the items related to output  
type selecting/display control section and the number of cases  
of the items that has been chronologically processed by said  
data processing section.

15 16. The production management system according to claim 9,  
wherein said output client comprises a regular executing  
section which

(C8) sends a command to said data transmitting section  
at every predetermined time interval.

20

17. The production management system according to claim 9,  
wherein said output client comprises a warning  
setting/generating section which

(C9) can display and select the contents of said quality  
25 contents master table,

sets the number of accumulated cases for generating a warning about those items, and displays a warning based on the calculation result by said data transmitting section and said data processing section.

5

18. The production management system according to claim 9, wherein said output client comprises a quality contents data display control section which

(C10) display all the data out of the data transmitted  
10 by said data transmitting section that is contained in said quality contents data table.

19. The production management system according to claim 18, wherein said output client comprises a single-component  
15 quality contents data display control section which

(C11) selects one out of the contents displayed in said quality contents data display control section, and displays quality contents related to said group codes of product under assembly or names of the selected item.

20

20. A production and management method which manages a) assembly data when components to be attached to a product under assembly are attached to said product under assembly, b) quality data regarding whether the quality of said product  
25 under assembly is good or bad, and c) check data obtained when

said product under assembly is checked based on certain prespecified check items, when obtaining a finished product by attaching one or more components such as parts, units, or other finished products to said product under assembly on one  
5 or more of production assembly line, said method comprising the steps of:

inputting a plurality of data for inputting and outputting said assembly data, said quality data, said check data, management numbers with which each of said product under  
10 assembly can be identified, and group codes of said product under assembly obtained by dividing said product under assembly according to their types in a step of assembling said product under assembly and a checking step of checking said product under assembly according to said check items,

15 sequentially storing assembly data that correlates a date and time on which said product under assembly is started to be assembled and a date and time when said product under assembly is completed to said management number and said group code of said product under assembly that are input in the  
20 inputting step,

the check data in a state of correlation with said management number and said group code of said product under assembly, and

the quality data in a state of correlation with said  
25 management number and said group code of said product under

assembly, to a host storage medium;

selecting respective desired items from said group codes  
of said product under assembly, specified dates and times,  
and a plurality of output information correlated to extraction  
5 conditions in order to extract desired data from the plurality  
of quality data and check data stored in said storage medium;

retrieving/extracting the data stored in said storage  
medium according to each item of the information for grouping  
said product under assembly, the specified date and time, and  
10 the output information selected in the selecting step;

storing the data retrieved and extracted in the  
retrieving/extracting step in a client storage medium;

chronologically processing the data stored in said  
client storage medium based on the items of said group code  
15 of said product under assembly, the specified date and time,  
and the output information selected in the selecting step;  
and

displaying the chronological data processed in the data  
processing step for each item to be output based on the output  
20 information.

21. The production management method according to claim 20  
further comprising the steps of:

selecting each of the items displayed in the display  
25 step; and



creating a graph of the item selected in the selection step based on chronological data.

22. The production management method according to claim 20 further comprising the step of:

displaying said quality data stored in said client storage medium.

23. The production management method according to claim 22 further comprising the steps of:

selecting some data displayed in the quality data display step; and

displaying quality data of only said product under assembly singularly.

15

24. The production management method according to claim 20 further comprising the step of:

automatically executing the retrieving/extracting step at a specified predetermined time interval.

20

25. The production management method according to claim 20 further comprising the steps of:

setting a particular number of cases with respect to the quality data extracted and stored in said client storage medium in said retrieving/extracting step; and

checking whether the set item matches with said particular number of cases, and generating and outputting a warning when the set item matches with said particular number of cases.

5

26. A production management method for managing a) assembly data when parts to be attached to a product under assembly are attached to said product under assembly, b) quality data regarding whether the quality of said product under assembly is good or bad, and c) check data obtained when said product under assembly is checked based on certain prespecified check items, when obtaining a finished product by attaching one or more components such as parts, units, or other finished products to said product under assembly on one or more of production assembly lines, wherein

A) a host server has (1) a master table of said product under assembly, (2) a quality contents master table, (3) a main data table, (4) a quality contents data table, and (5) a check contents data table, wherein

(1) said master table of said product under assembly stores data for group codes of said product under assembly obtained by dividing said product under assembly for each type,

(2) said quality contents master table stores data for group codes of said product under assembly and quality items related to said product under assembly,

(3) said main data table stores data for management numbers with which respective said product under assembly can be identified and group codes of said product under assembly in correlation with line information, such as the data and  
5 time on which assembly of said product under assembly is started, and the date and time on which the assembly of said product under assembly is completed on said production assembly line, obtainable by executing their assembly and checking on said production assembly line,

10 (4) said quality contents data table stores data for management numbers with which respective said product under assembly can be identified and said group codes of said product under assembly, quality items of said quality contents master table, quality information based on said quality items, its  
15 entry date and time, assembly, checking and fixing steps whose data is entered in correlation with each other, and

(5) said check contents data table stores data for management numbers with which respective said product under assembly can be identified and said group codes of said product  
20 under assembly in correlation with check items related to said product under assembly and the results of checking based on said check items,

B) an input client displays and inputs previously specified table information from said master table of said product under  
25 assembly, said check contents data table, and said quality

contents master table transferred from said host server, and transfers the information to said main data table, said quality contents data table, and said check contents data table according to the displayed and entered information,

5 C) an output client displays areas as follows:

(C1) a name of said product under assembly or a group code of said product under assembly is selected from a selection area of said product under assembly based on the information in said master table of said product under  
10 assembly,

(C2) an item to be output is selected from a selection area of output types based on the information according to said quality contents master table, and

(C3) a date to be output is selected from a date display  
15 area, and

D) further, the specified data based on the selected information is transferred from said output client to said host server,

E) the data is stored in said output client,

20 F) the stored data is processed to chronological data for each item selected in said output selection area, and

G) the chronological data is displayed for each item.

27. The production management method as described in claim 26, wherein

F) a total number of cases of each item is further added and processed in the data processing step, and

5 G) the total number of cases of each item is further displayed together with the chronological data in the display step.

28. The production management method as described in claim 26, wherein

10 H) the chronological data processed in the data processing step is converted to a graph.

29. The production management method as described in claim 26, wherein

15 I) said output client executes the data transfer at predetermined intervals.

30. The production management method as described in claim 26, wherein

20 J) said output client sets a quality item of said quality contents master table and an accumulation number of cases for the item, and displays a warning based on the data processing and the result of computing the data transfer.

25

31. The production management method as described in claim  
26, wherein

K) said output client displays all the data for said quality  
contents data table of the data transferred in the step of  
5 data transfer.

32. The production management method as described in claim  
31, wherein

L) said output client selects one of the plurality of quality  
10 contents displayed by said quality contents data display  
control section, and

M) said output client also displays a list of the quality  
contents in correlation with said group code of said product  
under assembly of said selected item.

15

33. A production management client system which manages a)  
assembly data when parts to be attached to a product under  
assembly are attached to said product under assembly, b)  
quality data regarding whether the quality of said product  
20 under assembly is good or bad, and c) check data obtained when  
said product under assembly is checked based on certain  
prespecified check items, when obtaining a finished product  
by attaching one or more components such as parts, units, or  
other finished products to said product under assembly on one  
25 or more of production assembly lines, said production

management client system comprising:

using an integrated storage medium which stores 1)  
management numbers with which each of said product under  
assembly can be identified and group codes of said product  
5 under assembly obtained by dividing said product under  
assembly according to their types, 2) quality data and check  
data correlating the quality information and the result of  
checking in a step of assembling parts to be attached to a  
product under assembly and a checking step of checking said  
10 product under assembly according to said check items on said  
production assembly line with said management number and said  
group code of said product under assembly as groups of tables,  
respectively,

a first display/selecting section which allows display  
15 and selection of a group code of said product under assembly;

a second display/selecting section which allows display  
and selection of a date and time;

a third display/selecting section which allows display  
and selection of extraction conditions to extract desired data  
20 out of said check data and said quality data stored in said  
integrated storage medium and a plurality of output  
information related to said extraction conditions;

a retrieving section which retrieves and extracts data  
stored in said integrated storage medium according to said  
25 group codes of said product under assembly, the specified date

and time, and the output information selected by said first, second, third display/selecting sections;

a storage section which stores the information retrieved and extracted by said retrieving section;

5 a data processing section which chronologically processes the data stored in said storage section based on said group codes of said product under assembly, the specified date and time, and the output information selected by said first, second, third display/selecting sections; and

10 a first display section which displays the data chronologically processed by said data processing section for each item to be output based on the output information.

34. The production management client system according to  
15 claim 33, wherein said first display section numerically displays the chronological data for said items to be output, prepares a graph of said chronological data for at least one of said items, and displays the graph.

20 35. The production management client system according to claim 34 further comprising:

a selecting section which selects any of item name of said items to be output displayed by said first display section; and

25 a graph preparing section which prepares a bar graph



of said chronological data for the item selected by said selecting section.

36. The production management client system according to  
5 claim 33, further comprising a second display section which displays said check data or said quality data extracted by said retrieving section and stored in said integrated storage medium.

10 37. The production management client system according to claim 36, further comprising a third display section which displays said check data or said quality data for only a product under assembly corresponding to said data displayed by said second display section and selected.

15 38. The production management client system according to claim 33, further comprising an executing section which allows said retrieving section to execute, by which any group code of said product under assembly, the specified date and time,  
20 and the output information selected by said first, second, and third display/selecting section are uploaded.

39. The production management client system according to claim 33, further comprising an executing section which allows  
25 said retrieving section to automatically execute at

predetermined time intervals, and utilizes said executing section to upload output information such as group code of said product under assembly, particular time and data selected by said first, second, and third display/selecting section.

5

40. The production management client system according to claim 33, further comprising a monitoring/setting section which monitors and sets information regarding check data or said quality data extracted by said retrieving section and  
10 stored in said second or third storage section; and a posting section which posts a notice when the number of information monitored and set by said monitoring/setting section matches a predetermined number.

15 41. A production management client system which manages a) assembly data when parts to be attached to a product under assembly are attached to said product under assembly, b) quality data regarding whether the quality of said product under assembly is good or bad, and c) check data obtained when  
20 said product under assembly is checked based on certain prespecified check items, when obtaining a finished product by attaching one or more components such as parts, units, or other finished products to said product under assembly on one or more of production assembly lines, wherein

25 using a host server having tables as follows:

(1) a master table of said product under assembly stores data for group codes of said product under assembly obtained by dividing said product under assembly for each type,

(2) a quality contents master table stores data about  
5 group codes of said product under assembly in correlation between quality items related to said product under assembly and quality contents in the production processes of said product under assembly,

(3) a main data table stores data about management  
10 numbers with which respective said product under assembly can be identified and group codes of said product under assembly in correlation with line information, such as the date and time on which assembly of said product under assembly is started, and the date and time on which the assembly of said  
15 product under assembly is completed on said production assembly line, obtainable by executing their assembly and checking on said production assembly line,

(4) a quality contents data table stores data about said management numbers and said group codes of said product under  
20 assembly, quality items in said quality contents master table, quality information based on said quality items, its entry date and time, assembly, checking and fixing steps whose data is entered in correlation with each other, and

(5) a check contents data table stores data about said  
25 management numbers and said group codes of said product under

assembly in correlation with check items related to said product under assembly and the results of checking based on said check items,.

an output client displays a selecting/display control  
5 section for said product under assembly, an output type selecting/display control section, a date selecting/display control section, and a data output/display control section on its display section, a data transfer section transfers specified data from said host server, and a data processing  
10 section processes the data transferred by said transfer section,

(C1) said selecting/display control section for said product under assembly can display and select any group code of said product under assembly based on the information in  
15 said master table of said product under assembly,

(C2) said output type selecting/display control section can display and select items to be output related to the information for said quality contents data table and said check contents data table,

(C3) said date display control section can display a calendar and specify a date,

(C4) said data transfer section transfers the data from said host server based on the conditions selected by said selecting/display control section for said product under  
25 assembly, said output type selecting/display control section,

and said data selecting/display control section,

(C5) said data processing section collects the data transferred by said data transfer section for each chronological base, and

5 (C6) said data output/display control section displays the chronological data of said data processing section for each item.

42. The production management client system according to  
10 claim 41, wherein said data processing section calculates the total number of cases of each data.

43. The production management client system according to  
15 claim 41, wherein said data output display control section prepares a table of the items related to output type selecting/display control section and number of cases of the items that has been chronologically processed by said data processing section and displays the prepared table.

20 44. The production management client system according to claim 43, wherein said data output display control section prepares a bar graph of the number of cases of the items that has been chronologically processed by said data processing section and displays the prepared table.

25

45. The production management client system according to claim 44, wherein said output client comprises a graph generation section which

(C7) prepares a graph of the items related to output  
5 type selecting/display control section and the number of cases of the items that has been chronologically processed by said data processing section.

46. The production management client system according to  
10 claim 41, wherein said output client comprises a regular executing section which

(C8) sends a command to said data transmitting section at every predetermined time interval.

47. The production management client system according to  
15 claim 41, wherein said output client comprises a warning setting/generating section which

(C9) can display and select the contents of said quality contents master table,

20 sets the number of accumulated cases for generating a warning about those items, and displays a warning based on the calculation result by said data transmitting section and said data processing section.

48. The production management client system according to claim 41, wherein said output client comprises a quality contents data display control section which

(C10) display all the data out of the data transmitted  
5 by said data transmitting section that is contained in said quality contents data table.

49. The production management client system according to claim 48, wherein said output client comprises a single-  
10 component quality contents data display control section which

(C11) selects one out of the contents displayed in said quality contents data display control section, and displays quality contents related to said group codes of product under assembly or names of the selected item.

15

50. A production management retrieval and display method for retrieving and displaying a) assembly data when parts to be attached to a product under assembly are attached to said product under assembly, b) quality data regarding whether the  
20 quality of said product under assembly is good or bad, and c) check data obtained when said product under assembly is checked based on certain prespecified check items, when obtaining a finished product by attaching one or more components such as parts, units, or other finished products  
25 to said product under assembly on one or more of production

assembly lines, said production management retrieval and display method comprising the steps of:

using an integrated storage medium which stores 1) management numbers with which each of said product under assembly can be identified and group codes of said product under assembly obtained by dividing said product under assembly according to their types, 2) quality data and check data correlating the quality information and the result of checking in a step of assembling parts to be attached to a product under assembly and a checking step of checking said product under assembly according to said check items on said production assembly line with said management number and said group code of said product under assembly as groups of tables, respectively,

displaying and selecting extraction conditions and a plurality of output information related to the extraction conditions to extract desired data out of 1) said group code of product under assembly, 2) a desired date and time, and 3) said quality data and said check data stored in said integrated storage medium;

instructing said integrated storage medium to transfer so as to transfer the data stored in said integrated storage medium according to said group code of said product under assembly, the specified date and time, and the output information selected in the displaying /selecting step;



storing the data transferred in the transfer instructing  
step in said storage medium;

chronologically processing the data stored in said  
storing step based on said group code of said product under  
5 assembly, the specified date and time, and the output  
information selected in the displaying/selecting step; and

displaying the data chronologically processed in the  
data processing step for each item to be output based on the  
output information.

10

51. The production management retrieval and display method  
according to claim 50, wherein the display step numerically  
displays the chronological data for the items to be output,  
prepares a graph of the chronological data for at least one  
15 of the items, and displays the graph.

52. The production management retrieval and display method  
according to claim 51 further comprising the steps of:

selecting each of the items displayed in the display  
20 step; and

creating a graph of the item selected in the selection  
step based on chronological data.

25

53. The production management retrieval and display method according to claim 51, wherein said check data or said quality data extracted by said retrieving section and stored in said integrated storage medium is also displayed in the display  
5 step.

54. The production management retrieval and display method according to claim 53, further comprising a step of displaying in detail said check data or said quality data for only a  
10 product under assembly corresponding to said data displayed in the display step by selecting some particular data.

55. The production management retrieval and display method according to claim 50, wherein the retrieval step is executed  
15 continuously.

56. The production management retrieval and display method according to claim 50 further comprising the steps of:

monitoring and setting information regarding check data  
20 or said quality data extracted by said retrieving section and stored in said second or third storage section; and

posting a notice when the number of information monitored and set by said monitoring/setting section matches a predetermined number.

25

57. A production management retrieval and display method for retrieving and displaying a) assembly data when components to be attached to a product under assembly are attached to said product under assembly, b) quality data regarding whether  
5 the quality of said product under assembly is good or bad, and c) check data obtained when said product under assembly is checked based on certain prespecified check items, when obtaining a finished product by attaching one or more components such as parts, units, or other finished products  
10 to said product under assembly on one or more of production assembly line, wherein

using a host server having tables as follows:

(1) a master table of said product under assembly stores data for management numbers with which each of said product  
15 under assembly can be identified and group codes of said product under assembly obtained by dividing said product under assembly for each type,

(2) a quality content master table stores data about said group codes of said product under assembly in correlation  
20 with quality items related to said product under assembly,

(3) a main data table stores data about said management numbers and said group codes of said product under assembly in correlation with line information, such as the date and time on which assembly of said product is started, and the  
25 date and time on which the assembly of said product under

assembly is completed on said production assembly line, obtainable by executing their assembly and checking on said production assembly line.

(4) a quality contents data table stores data about said  
5 management numbers and said group codes of said product under assembly, quality items in said quality content master table, quality information based on the quality items, its entry date and time, assembly, checking and fixing steps whose data is entered in correlation with each other, and

10 (5) a check content data table stores data about said management numbers and said group codes of said product under assembly in correlation with check items related to said product under assembly and the results of checking based on said check items, an output client displays a  
15 selecting/display control section for said product under assembly, an output type selecting/display control section, a date selecting/display control section, and a data output/display control section on its display section, a data transfer section transfers specified data from said host  
20 server, and a data processing section processes the data transferred by said transfer section.

(C1) said selecting/display control section for said product under assembly can display and select any group code of said product under assembly based on the information in  
25 said master table of said product under assembly,

(C2) said output type selecting/display control section can display and select items to be output based on the information corresponding said quality content data table or said check content data table.

- 5 (C3) said date display control section can display a calendar and specify a date,

(C4) said data transfer section transfers the data from said host server based on the conditions selected by said selecting/display control section for said product under  
10 assembly, said output type selecting/display control section, and said date selecting/display control section,

(C5) said data processing section collects the data transferred by said data transfer section for each chronological base, and

- 15 (C6) said data output/display control section displays the  
chronological data of said data processing section for each item.

- 20 58. The production management retrieval and display method according to claim 57, wherein said data processing section calculates the total number of cases of each data.

59. The production management retrieval and display method according to claim 57, wherein said data output display control section prepares a table of the items related to output type selecting/display control section and number of cases of the  
5 items that has been chronologically processed by said data processing section and displays the prepared table.

60. The production management retrieval and display method according to claim 59, wherein said data output display control  
10 section prepares a bar graph of the number of cases of the items that has been chronologically processed by said data processing section and displays the prepared table.

61. The production management retrieval and display method according to claim 60 further comprising the step of:  
15

(C7) preparing a graph of the items related to output type selecting/display control section and the number of cases of the items that has been chronologically processed by said data processing section.

20

62. The production management retrieval and display method according to claim 57 further comprising the step of:

(C8) sending a command to said data transmitting section at every predetermined time interval.

25

63. The production management retrieval and display method according to claim 57 further comprising the step of:

(C9) displaying and selecting the contents of said quality contents master table, and setting the number of accumulated cases for generating a warning about those items, and displays a warning based on the calculation result by said data transmitting section and said data processing section.

64. The production management retrieval and display method according to claim 57 further comprising the step of:

(C10) displaying all the data out of the data transmitted by said data transmitting section that is contained in said quality contents data table.

65. The production management retrieval and display method according to claim 64 further comprising the step of:

(C11) selecting one out of the contents displayed in said quality contents data display control section, and displays quality contents related to said group codes of product under assembly or names of the selected item.

66. A recording medium which allows execute a program for retrieving and displaying a) assembly data when parts to be attached to a product under assembly are attached to said product under assembly, b) quality data regarding whether the

quality of said product under assembly is good or bad, and  
c) check data obtained when said product under assembly is  
checked based on certain prespecified check items, when  
obtaining a finished product by attaching one or more  
5 components such as parts, units, or other finished products  
to said product under assembly on one or more of production  
assembly lines, said program comprising the steps of:

using an integrated storage medium which stores A)  
management numbers with which each of said product under  
10 assembly can be identified and group codes of said product  
under assembly obtained by dividing said product under  
assembly according to their types, B) quality data and check  
data correlating the quality information and the result of  
checking in a step of assembling components and units or the  
15 like to a product under assembly and a checking step of checking  
said product under assembly according to the prespecified  
check items on said production assembly line with said  
management number and said group code of said product under  
assembly as groups of tables, respectively,

20 displaying extraction conditions and a plurality of  
output information related to said extraction conditions to  
extract desired data out of 1) said management numbers with  
which each of said product under assembly can be identified  
and said group code of product under assembly obtained by  
25 dividing said product under assembly for each type, 2) a



desired date and time, and 3) a plurality of said quality data and said check data stored in said integrated storage medium; enabling selection of the displayed extraction conditions;

5        instructing said integrated storage medium so as to transfer the data stored in said integrated storage medium according to the information selected from the extraction conditions;

10        storing the transferred extraction data that is retrieved by said integrated storage medium in said storage medium;

15        chronologically processing the data stored in said storage medium based on said group code of said product under assembly, the specified date and time, and the output information selected in the displaying/selecting step; and

      displaying the chronologically processed data for each item to be output based on the output information.

20        67. The program stored in said recording medium according to claim 66 further executing the step of numerically displaying the chronological data for the items to be output and preparing a graph of the chronological data for at least one of the items.

68. The program stored in said recording medium according to claim 67 further executing the step of:

selecting each of the items displayed in the display step; and

- 5       creating a graph of the item selected in the selection step based on chronological data.

69. The program stored in said recording medium according to claim 68 further executing the step of:

- 10       displaying said check data or said quality data extracted by said retrieving section and stored in said integrated storage medium.

70. The program stored in said recording medium according to claim 68 further executing the step of:

displaying said check data or said quality data for only a product under assembly corresponding to said data displayed by said second display section and selected.

- 20   71. The program stored in said recording medium according to claim 66 further executing the step of:

continuously executing the retrieving/extracting step.

72. The program stored in said recording medium according to claim 66 further executing the step of:

monitoring and setting information regarding check data or said quality data extracted by said retrieving section and  
5 stored in said second or third storage section; and

posting a notice when the number of information monitored and set by said monitoring/setting section matches a predetermined number.

10 73. A recording medium which contains a computer program which when executed causes a computer to execute the steps of retrieving and displaying a) assembly data when parts to be attached to a product under assembly are attached to said product under assembly, b) quality data regarding whether the  
15 quality of said product under assembly is good or bad, and c) check data obtained when said product under assembly is checked based on certain prespecified check items, when obtaining a finished product by attaching one or more components such as parts, units, or other finished products  
20 to said product under assembly on one or more of production assembly lines, said program further causing the computer to execute the steps of:

using a host server having tables as follows:

(1) data about group codes of said product under assembly  
25 obtained by dividing said product under assembly for each type

is stored in a master table of said product under assembly,

(2) data about group codes of said product under assembly is stored in a quality contents master table in correlation with quality items related to said product under assembly,

5 (3) data about management numbers and group codes of said product under assembly is stored in a main data table in correlation with line information, such as the date and time on which assembly of said product under assembly is started, and the date and time on which the assembly of said  
10 product under assembly is completed on said production assembly line, obtainable by executing their assembly and checking on said production assembly line,

(4) data about said management numbers and said group codes of said product under assembly is stored in a quality  
15 contents data table in correlation with quality items in said quality contents master table, quality information based on said quality items, its entry date and time, assembly, checking and fixing steps whose data is entered, and

(5) data about said management numbers and said group  
20 codes of said product under assembly is stored in a check contents data table in correlation with check items related to said product under assembly and the results of checking in a production process of said product under assembly,

enabling display of a selection area of said product  
25 under assembly, an output type selection area, a date selection

area, and a data output area;

(C1) group codes of said product under assembly based on the information in said master table of said product under assembly can be displayed and selected in said selection area  
5 of said product under assembly.

(C2) items to be output based on the information according to said quality contents master table can be displayed and selected in said output type selection area, and

10 (C3) a calendar can be displayed and a date can be specified in said date display area,

transferring the specified data in said areas from said host server;

enabling selection of the items displayed in said areas;

15 instructing so as to transfer the data from said host server based on the items in each selected area;

storing the data transferred from said host server;

collecting the stored transfer data on each chronological base; and

20 chronologically displaying the data as the result of collection for each display item in correlation with the item to be output specified in said output type selection area.

74. The program stored in said recording medium according to claim 73 further causing the computer to execute the step of:

calculating the total number of cases of each data.

5

75. The program stored in said recording medium according to claim 73 further causing the computer to execute the step of:

10 displaying in a tabular form the display items correlated to the display items specified based on said output type selecting area and the number of cases processed in a chronological order for each item.

15 76. The program stored in said recording medium according to claim 75 further causing the computer to execute the step of:

creating a graph of the number of cases processed in a chronological order.

20 77. The program stored in said recording medium according to claim 76 further causing the computer to execute the step of:

25 creating a graph of the display items correlated to the display items specified based on said output type selecting area against the chronologically processed data.

78. The program stored in said recording medium according to claim 73 further causing the computer to execute the step of:

executing the data transmission at each predetermined  
5 time interval.

79. The program stored in said recording medium according to claim 73 further causing the computer to execute the step of:

10 selecting a quality item in said quality contents master table;

setting a number of accumulation number with respect to the selected quality item; and

displaying a warning when the accumulated data exceed  
15 the set accumulation number.

80. The program stored in said recording medium according to claim 73 further causing the computer to execute the step of:

20 displaying all the data out of the data transmitted that is contained in said quality contents data table.

81. The program stored in said recording medium according to claim 80 further causing the computer to execute the step  
25 of:

selecting only one data from said quality contents data  
table;

displaying in a list fashion said group code of said  
product under assembly and the quality contents related to  
5 said product under assembly.

82. A production management host server system which  
retrieves and displays a) assembly data when parts to be  
attached to a product under assembly are attached to said  
10 product under assembly, b) quality data regarding whether the  
quality of said product under assembly is good or bad, and  
c) check data obtained when said product under assembly is  
checked based on certain prespecified check items, when  
obtaining a finished product by attaching one or more  
15 components such as parts, units, or other finished products  
to said product under assembly on one or more of production  
assembly lines, wherein

(1) a master table of said product under assembly stores  
data for group codes of said product under assembly obtained  
20 by dividing said product under assembly for each type,

(2) a quality contents master table stores data for group  
codes of said product under assembly in correlation with  
quality items related to said product under assembly,

(3) a main data table stores data for management numbers  
25 with which respective said product under assembly can be



identified and group codes of said product under assembly in correlation with line information, such as the date and time on which assembly of said product under assembly is started, and the date and time on which the assembly of said product under assembly is completed on said production assembly line, obtainable by executing their assembly and checking on said production assembly line,

(4) a quality contents data table stores data for said management numbers and said group codes of said product under assembly, quality items in said quality contents master table, quality information based on said quality items, its entry date and time, assembly, checking and fixing steps whose data is entered in correlation with each other, and

(5) a check contents data table stores data about said management numbers and said group codes of said product under assembly in correlation with check items related to said product under assembly and the results of checking based on said check items,

wherein when the following operations are selected at an output client:

(C1) a group code of said product under assembly is selected based on the information in said master table of said product under assembly,

(C2) an output request based on the information according to said quality contents master table is selected,

(C3) a specific date is selected, and

(C4) an instruction of data transfer based on the selected condition received,

the data based on the data for transfer instruction is  
5 retrieved and extracted from the group of tables, and the  
extracted data is transferred to said output client.

83. The production management host server system according  
to claim 82 further comprising a check contents master table  
10 which

(6) stores therein in a correlated manner data about  
management numbers with which respective said product under  
assembly can be identified, group codes of said product under  
assembly, check items for checking said product under assembly  
15 on said production assembly line, and the process that make  
use of said check items.

84. The production management host server system according  
to claim 83, wherein

20 when said input client requests information in said  
master table of said product under assembly, said check  
contents data table, and said quality contents master table,  
the requested information in said main data table, said quality  
contents table, and said check contents data table is  
25 transmitted to said input client.

85. A production management data transfer method for  
retrieving and displaying a) assembly data when parts to be  
attached to a product under assembly are attached to said  
product under assembly, b) quality data regarding whether the  
5 quality of said product under assembly is good or bad, and  
c) check data obtained when said product under assembly is  
checked based on certain prespecified check items, when  
obtaining a finished product by attaching one or more  
components such as parts, units, or other finished products  
10 to said product under assembly on one or more of production  
assembly lines, wherein data is stored in respective tables  
as followed:

(1) data for group codes of said product under assembly  
obtained by dividing said product under assembly for each type  
15 is stored in a master table of said product under assembly,

(2) data for group codes of said product under assembly  
is stored in a quality contents master table in correlation  
with quality items related to said product under assembly and  
quality contents in said production assembly process of said  
20 product under assembly,

(3) data for management numbers with which respective  
said product under assembly can be identified and group codes  
of said product under assembly is stored in a main data table  
in correlation with line information, such as the date and  
25 time on which assembly of said product under assembly is



the data based on the data for transfer instruction is retrieved and extracted from the group of tables, and the data extracted in the extracting step is transferred to said output client.

5

86. The production management data transfer method according to claim 85 further comprising a step of:

(6) storing data about management numbers with which respective said product under assembly can be identified, group codes of said product under assembly, check items for checking said product under assembly on said production assembly line, and the process that make use of said check items in said check contents master table in a correlated manner.

15

87. The production management data transfer method according to claim 85 further comprising a step of:

transmitting a requested information in said main data table, said quality contents table, and said check contents data table is transmitted to said input client when said input client requests information in said master table of said product under assembly, said check contents data table, and said quality contents master table.

25

88. A recording medium which contains a computer program which when executed causes a computer to execute the steps of retrieving and displaying a) assembly data when parts to be attached to a product under assembly are attached to said product under assembly, b) quality data regarding whether the quality of said product under assembly is good or bad, and c) check data obtained when said product under assembly is checked based on certain prespecified check items, when obtaining a finished product by attaching one or more components such as parts, units, or other finished products to said product under assembly on one or more of production assembly lines, wherein data is stored in respective tables as followed:

(1) data for group codes of said product under assembly obtained by dividing said product under assembly for each type is stored in a master table of said product under assembly,

(2) data for group codes of said product under assembly is stored in a quality contents master table in correlation with quality items related to said product under assembly and the quality contents in the production process of said product under assembly,

(3) data about management numbers with which respective said product under assembly can be identified and group codes of said product under assembly is stored in a main data table in correlation with line information, such as the date and

time on which assembly of said product under assembly is started, and the date and time on which the assembly of said product under assembly is completed on said production assembly line, obtainable by executing their assembly and  
5 checking on said production assembly line,

(4) data about said management numbers and said group codes of said product under assembly is stored in a quality contents data table in correlation with the information entered on said production assembly line, its entry date and  
10 time, assembly, checking and fixing steps whose data is entered in said quality contents master table, and

(5) data about said management numbers and said group codes of said product under assembly is stored in a check contents data table in correlation with check items related  
15 to said product under assembly and the result of checking in the production process of said product under assembly,

wherein when the following operations are selected at an output client:

(C1) a group code of said product under assembly based  
20 on the information in said master table of said product under assembly is selected,

(C2) an output request based on the information according to said quality contents master table is selected,

(C3) a specific date is selected, and

25 (C4) data transfer based on the selected condition is

instructed,

operations are allowed to be executed so that the data based on the data for transfer instruction is retrieved and extracted from the group of tables, and

5 the extracted data is transferred to said output client.

89. The program stored in said recording medium according to claim 88 further causing the computer to execute the step of:

10 (6) storing data about management numbers with which respective said product under assembly can be identified, group codes of said product under assembly, check items for checking said product under assembly on said production assembly line, and the process that make use of said check  
15 items in a check contents master table in a correlated manner.

90. The program stored in said recording medium according to claim 89 further causing the computer to execute the step of:

20 transmitting a requested information in said main data table, said quality contents table, and said check contents data table is transmitted to said input client when said input client requests information in said master table of said product under assembly, said check contents data table, and  
25 said quality contents master table.



ABSTRACT OF THE DISCLOSURE

In the production management system, supervisors of manufacturing and production check section, component check section, and manufacturing technical section set retrieval  
5 conditions for retrieving data stored in a database of a step-monitoring server in order to obtain information on daily, hourly and monthly statuses of products in the production management system by using output system clients. The input retrieval conditions are transmitted to the step-monitoring  
10 server. Data matching with these retrieval conditions are retrieved from the database of the step-monitoring server. The retrieved data is chronologically processed and displayed on screens of the clients which requested the data.

1/123

FIG. 1

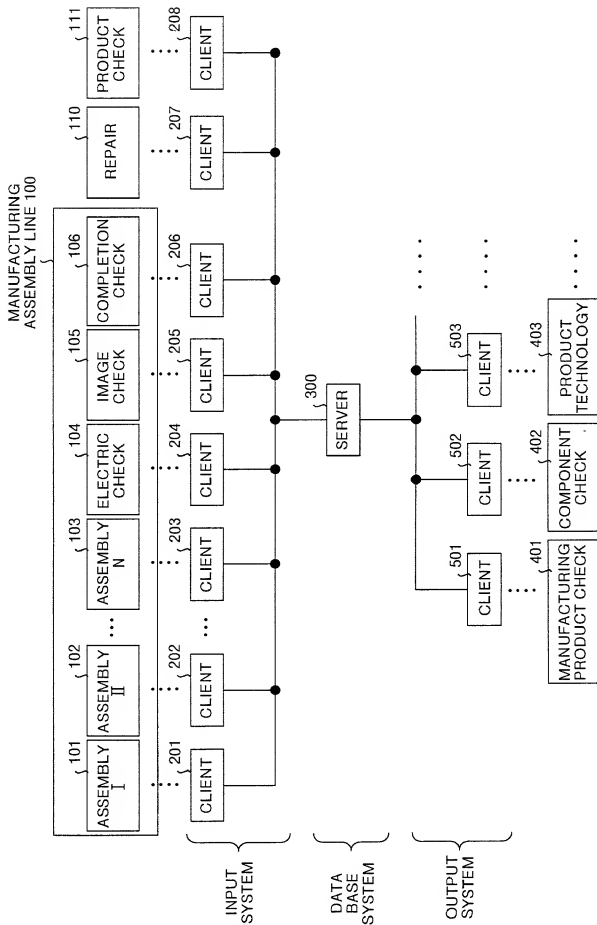


FIG. 2

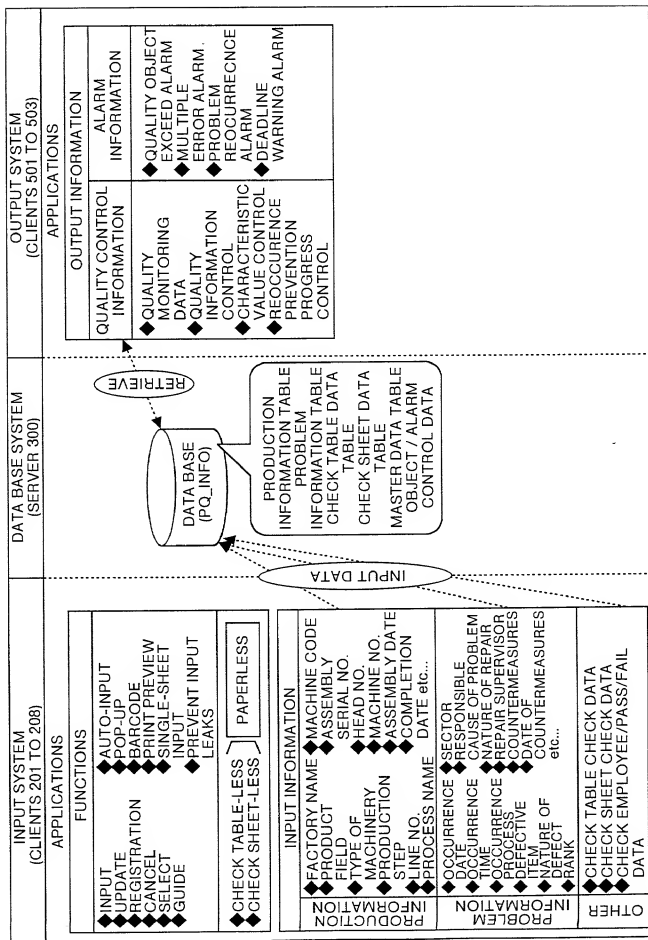


FIG.3

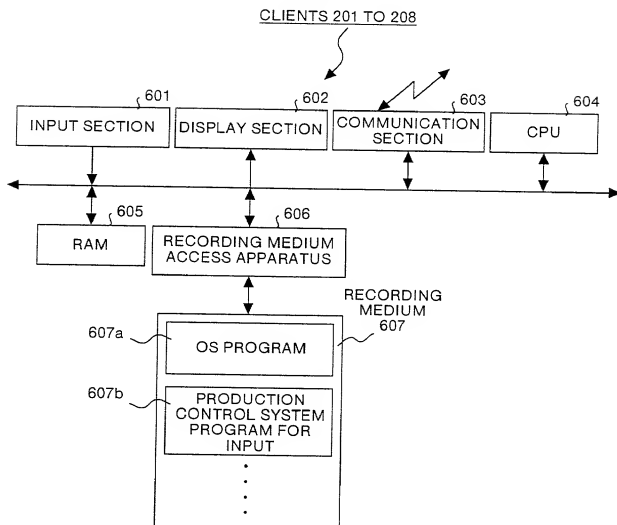


FIG.4

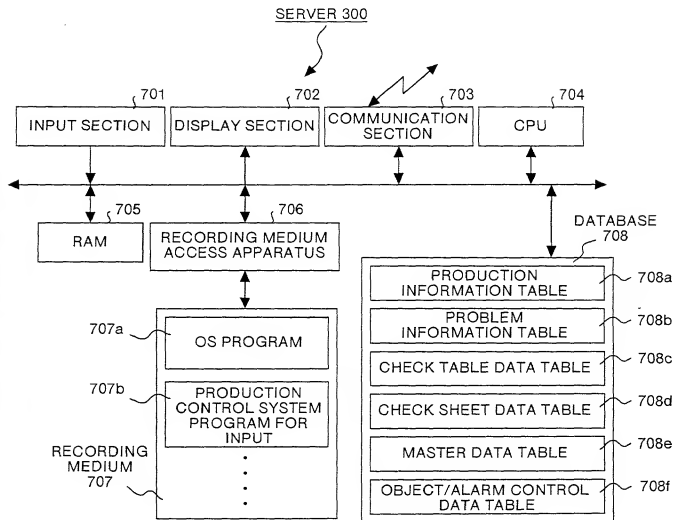


FIG.5

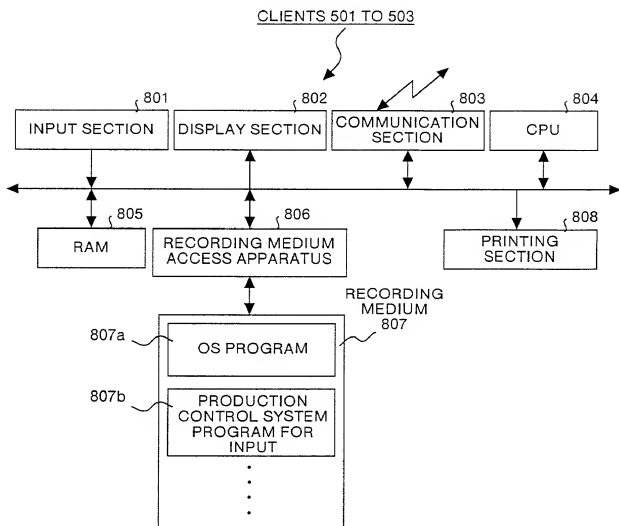
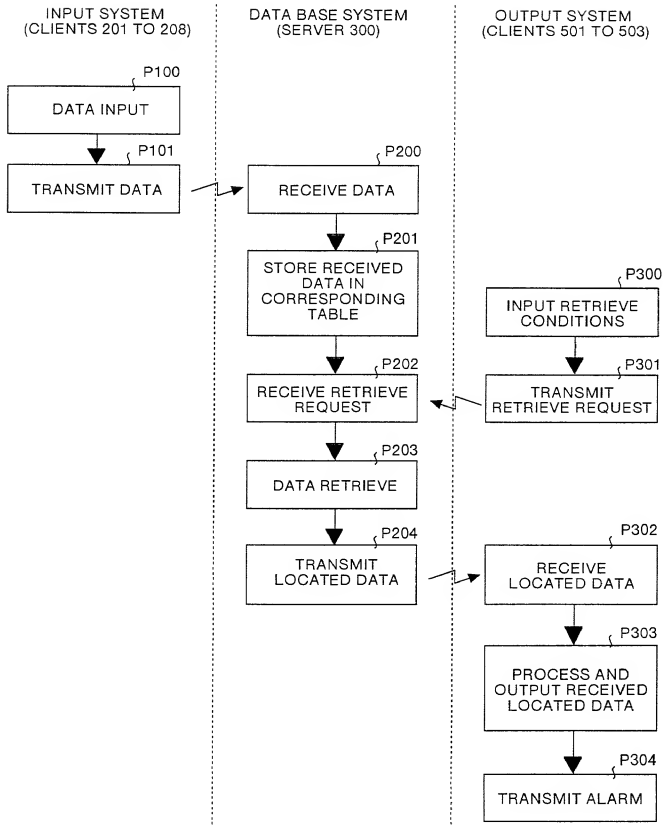
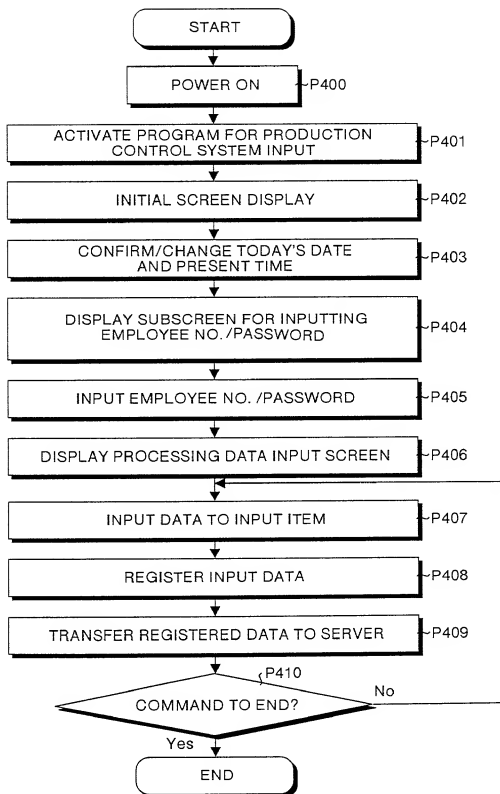


FIG.6



7/123

FIG.7





8/123

FIG. 8

INPUT SYSTEM INITIAL SCREEN: CONFIRM DATE AND PRESENT TIME

1000

INPUT PROCESSING DATA	IMMEDIATE PROCESSING INPUT	REJECT CANCEL INPUT	CALL STORED DATA	UPDATE (CALL) INPUT	NON-PROCESSING INPUT	ADJUST DATE/TIME	INPUT END
-----------------------	----------------------------	---------------------	------------------	---------------------	----------------------	------------------	-----------

CONFIRM WHETHER PRESENT DATE AND TIME ARE CORRECT. IF WRONG, PLEASE ENTER THE CORRECT DATE AND TIME IN THE SPACE ON THE RIGHTHAND SIDE. (BOTH CAPITAL AND SMALL LETTERS ARE ACCEPTABLE)

TODAY'S DATE 98/08/31	1001
PRESENT TIME 10:12:05	
DATE/TIME SETTING COMPLETE BUTTON	END WITHOUT SETTING

9/123

FIG. 9

SET EMPLOYEE NO. /PASSWORD				
INPUT PROCESSING DATA	IMMEDIATE PROCESSING INPUT	REJECT CANCEL INPUT	CALL STORED DATA	UPDATE (CALL) INPUT
			NON-PROCESSING INPUT	ADJUST DATE/TIME
				INPUT END

PLEASE ENTER THE EMPLOYEE NO. AND  
PASSWORD, THEN PRESS "ENTER"

EMPLOYEE NO.	OK
PASSWORD	CANCEL

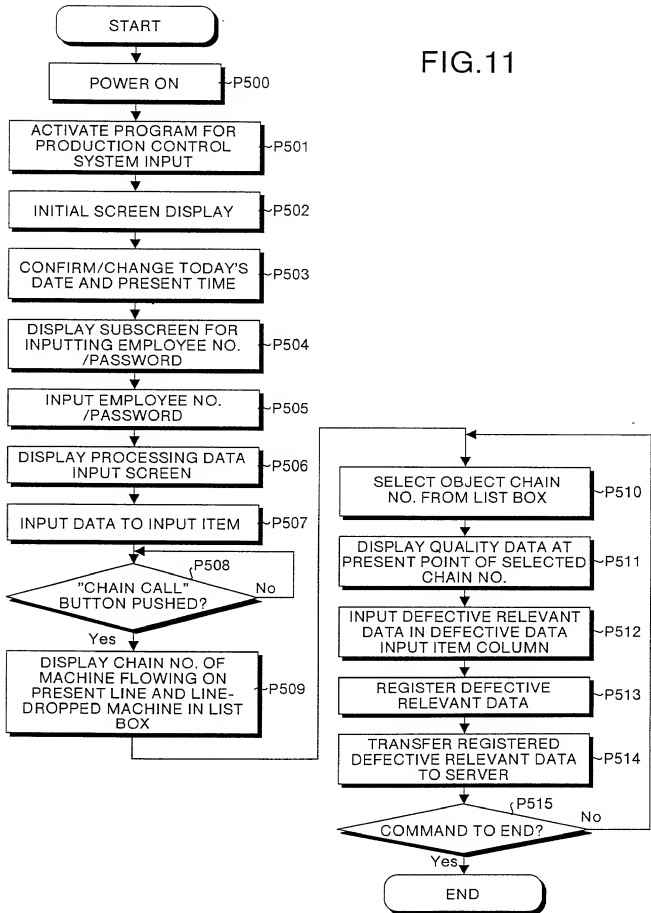
1002

FIG.10

INPUT AND DATA REGISTRATION BY ASSEMBLY SERIAL NUMBER															
INPUT PROCESSING DATA		IMMEDIATE PROCESSING INPUT		REJECT CANCEL INPUT		CALL STORED DATA		UPDATE (CALL) INPUT		NON-PROCESSING INPUT		ADJUST DATE/TIME		INPUT END	
[01] ATSUGI															
1003		1009		1004		1010		1005		1006		1007		1011	
FACTORY		PRODUCT FIELD		MACHINE TYPE NAME		PRODUCTION STEP		LINE NO		PROCESS		ASSEMBLY START DATE		ASSEMBLY START TIME	
MACHINE TYPE CODE		ASSEMBLY SERIAL NO.		HEAD LOT NO		MACHINE NO.		COMPLETION DATE		COMPLETION TIME		14-42		CHECK TABLE (F6)	
OCCURRENCE DATE		OCCURRENCE TIME		NATURE OF DEFECT 1		NATURE OF DEFECT 2		REJECT CHANGES		RANK		RESPONSIBLE SECTOR 1		RESPONSIBLE SECTOR 2	
1															
2															
3															
4															
5															
6															
GUIDE MESSAGE   PLEASE INPUT FACTORY NO. OR CLICK THE MOUSE ON THE TARGET FACTORY															
F1 REGISTER		F4:PRINT		F5:HOLD		F8:CHAIN		F10:COMPLETE		F12:DELETE		REJECT		1025 DELETE REJECT	

11/123

FIG.11



007060-25045560

FIG.12

DATA INPUT IN EACH CHECK PROCESS															
INPUT PROCESSING DATA		IMMEDIATE PROCESSING INPUT		REJECT CANCEL INPUT		CALL STORED DATA		UPDATE (CALL) INPUT		NON-PROCESSING INPUT		ADJUST DATE/TIME		INPUT END	
[01] ATSUGI															
1003		1009		1004		1010		1005		1006		1007		1008	
FACTORY		PRODUCT FIELD		MACHINE TYPE NAME		PRODUCTION STEP		MASS-PRODUCTION		LINE NO		PROCESS IMAGE		CHECK 01	
ATSUGI		PRN		SANDIA						B11					
MACHINE TYPE CODE		ASSEMBLY SERIAL NO.		HEAD LOT NO		MACHINE NO.		COMPLETION DATE		COMPLETION TIME		ASSEMBLY START DATE		ASSEMBLY START TIME	
G028-00												980910		13:57	
OCCURRENCE DATE		OCCURRENCE TIME		PROCESS DEFECTIVE ITEM		NATURE OF DEFECT		REJECT		CHANGES RANK		RESPONSIBLE SECTOR 1		RESPONSIBLE SECTOR 2	
1						1									
2															
3															
4															
5															
6															
GUIDE MESSAGE   PLEASE INPUT FACTORY NO. OR CLICK THE MOUSE ON THE TARGET FACTORY															
F1: REGISTER		F4: PRINT		F5: HOLD		F8: CHAIN		F10: COMPLETE		F12: DELETE		REJECT		1022 1025	
														DELETE REJECT	

## DATA INPUT IN EACH CHECK PROCESS

INPUT PROCESSING DATA		IMMEDIATE PROCESSING INPUT		REJECT CANCEL INPUT		CALL STORED DATA		UPDATE (CALL INPUT)		NON-PROCESSING INPUT		ADJUST DATE/TIME		INPUT END	
[01] ATSUGI															
1003		1009		1004		1010		1005		1006		1007		1008	
FACTORY		PRODUCT FIELD		MACHINE TYPE NAME		PRODUCTION STEP		LINE NO		PROCESS		ASSEMBLY START DATE		ASSEMBLY START TIME	
ATSUGI		PRN		SANDIA		MASS-PRODUCTION		B11		IMAGE CHECK 01		980910		13:57	
MACHINE TYPE CODE		ASSEMBLY SERIAL NO.		HEAD LOT NO		MACHINE NO.		COMPLETION DATE		COMPLETION TIME		COMPLETION (F10)		FIXED ROW SETTING	
G028-00															
OCCURRENCE DATE OCCURRENCE TIME															
RECHECK	DATE	TIME	PROCESS	DEFECTIVE ITEM	NATURE OF DEFECT 1	NATURE OF DEFECT 2	REJECT CHANGES	RANKABLE	RESPONS-IBLE	SECTOR 1	SECTOR 2				
1	980901	14:13	IMAGE CHECK 01	ABNORMAL SOUND	GOWER	DURING PAPER DISCHARGE	*								
2															
3															
4															
5															
6															

CHAIN CALL (F8)		NO		ASSEMBLY SERIAL NO	
PRINTING		1021		1 9809-00062	
CHECK TABLE (F6)		1011		2 9809-00084	
C SHEET (F7)				3 9809-00094	
COMPLETION TIME				4 9809-00117	
COMPLETION (F10)				5 9809-00146	
FIXED ROW SETTING				6 9809-00149	
				7 9809-00239	
				8 9809-00254	
				9 9809-00259	
				10 9809-00260	
				11 9809-00266	
				12 9809-00269	
				13 9809-00273	
				14 9809-00278	
				15 9809-00286	
				16 9809-00290	
				17 9809-00290	
				18 9809-00303	
				19 9809-00304	
				20 9809-00306	
				21 9809-00310	
				22 9809-00312	
				23 9809-00317	
				24 9809-00318	
				25 9809-00320	
				26 9809-00324	
				27 9809-00325	
				28 9809-00331	
				29 9809-00332	
				30 9809-00333	

GUIDE MESSAGE PLEASE INPUT FACTORY NO. OR CLICK THE MOUSE ON THE TARGET FACTORY					
F1: REGISTER	F4: PRINT	F5: HOLD	F8: CHAIN	F10: COMPLETE	F12: DELETE
				REJECT	1022
				DELETE	1025

1020

14/123

FIG.14

INPUT DEFECTIVE RELEVANT DATA IN  
SINGLE-SHEET FORMAT

DATA ITEM	DATA
RECHECK	980901
OCCURRENCE DATE	14/13
OCCURRENCE TIME	IMAGE CHECK 01
PROCESS	ABNORMAL SOUND
DEFECTIVE ITEM	GOWER
NATURE OF DEFECT 1	DURING PAPER DISCHARGE
NATURE OF DEFECT 2	
NATURE OF DEFECT 3	
REJECT	*
CHANGES	
RANK	
RESPONSIBLE SECTOR 1	
RESPONSIBLE SECTOR 2	
NON-REOCCURRENCE	
CAUSE OF DEFECT	
NATURE OF REPAIR 1	
NATURE OF REPAIR 2	
DATE OF REPAIR	
REPAIR TIME	
REPAIR SUPERVISOR	
PREVENTION OF REOCCURRENCE	
DATE OF COUNTERMEASURE	
TIME OF COUNTERMEASURE	
COUNTERMEASURE SUPERVISOR	

GUIDE MESSAGE: PLEASE REGISTER AFTER INPUTTING NECESSARY DATA

001060-25045960

FIG.15

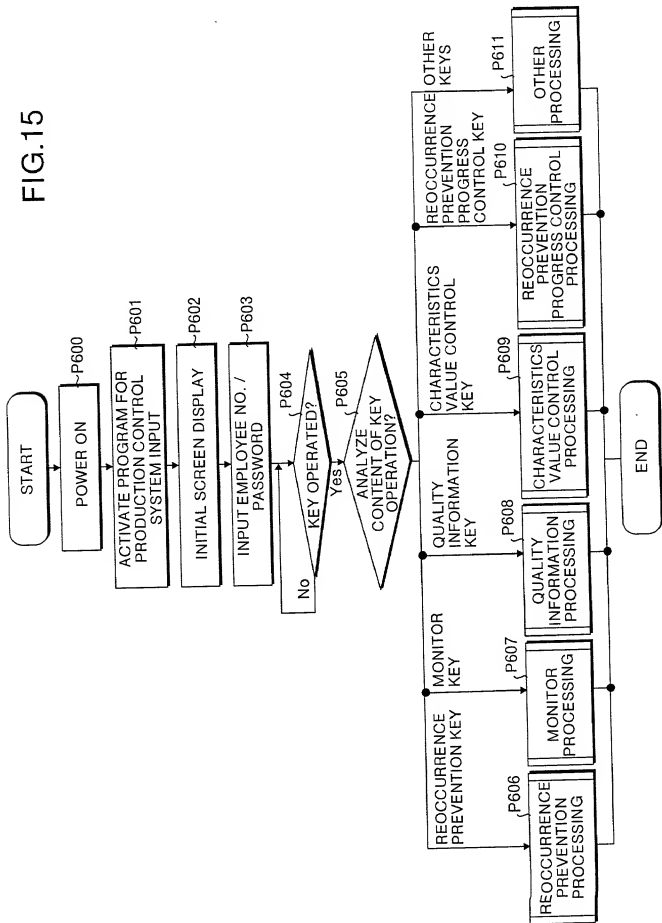
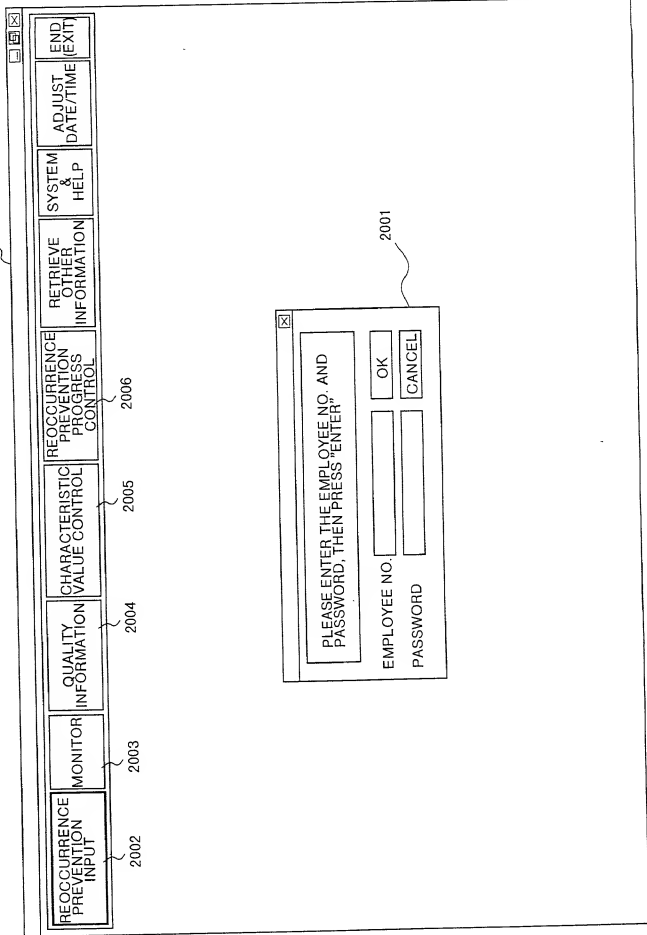




FIG. 16



17/123

FIG.17

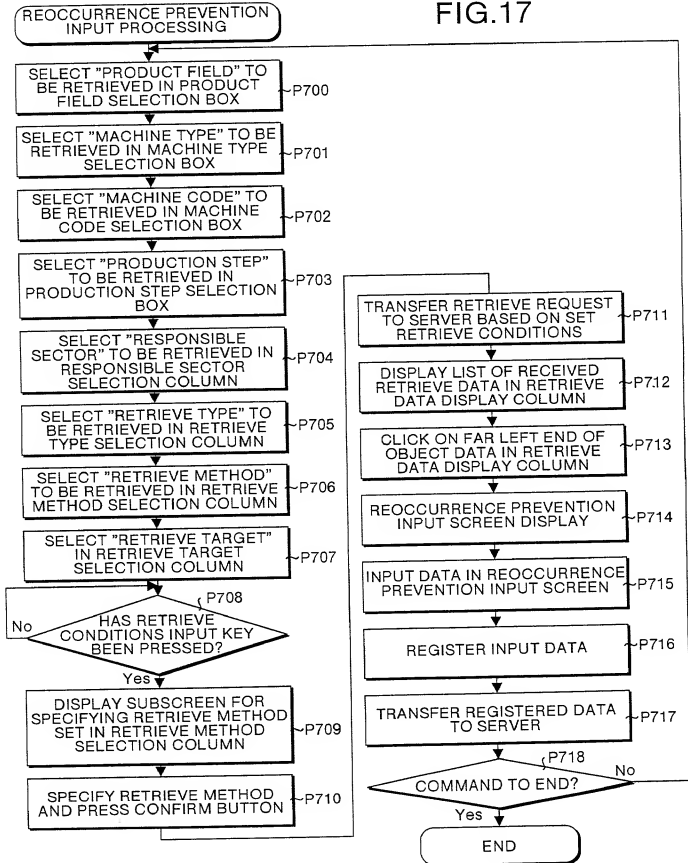


FIG.18

2009

RETRIEVE CONDITIONS SETTINGS (1)									
2002		2003		2004		2005		2006	
REOCCURRENCE PREVENTION INPUT	MONITOR	QUALITY INFORMATION	CHARACTERISTIC VALUE CONTROL	REOCCURRENCE PREVENTION PROGRAM CONTROL	RETRIEVE OTHER INFORMATION	SYSTEM & HELP	ADJUST DATE/TIME	END (EXIT)	
EXISTENCE PERIOD OF MACHINE TYPE DATA		SEARCH CONDITIONS INPUT		EXECUTE RETRIEVE	LOAD SPREAD SHEET	PRINT	NO OF RETRIEVES :3000		
PRODUCT FIELD SELECTION BOX		COUNTERMEASURES + NEW DEFECTS	SELECT ROWS FOR DISPLAY / NON-DISPLAY	RETURN TO REFERENCE ROW WIDTH	SINGLE-SHEET FORMAT DISPLAY	FIXED ROW SETTING			
MACHINE SELECTION BOX		CODEN	ASSEMBLY MACHINE HEAD NO	REC CHECK	PROCESS DEFECTIVE ITEM NAME	NATURE OF DEFECT			
MACHINE CODE SELECTION BOX									
PRODUCTION STEP SELECTION BOX									
TRIAL DESIGN TRIAL CAPABILITY TEST IMPROVE PROFICIENCY TRIAL PROFICIENCY									
(RESPONSIBLE SECTOR SELECTION)									
COMPONENT									
ASSEMBLY									
OTHER									
TECHNOLOGY									
DESIGN									
ALL									
(RETRIEVE TYPES)									
REOCCURRENCE PREVENTION NON INPUT DATA									
REOCCURRENCE PREVENTION INPUT DATA BOTH (ALL)									
(RETRIEVE METHOD)									
RETRIEVE BY DATE									
RETRIEVE BY CHAIN NO.									
RETRIEVE BY MACHINE NO.									
PROCESSING ONLY									
		GUIDE MESSAGE		PLEASE SET RETRIEVE CONDITIONS					

19/123

FIG. 19

RETRIEVE CONDITIONS SETTINGS (1)									
2002		2003		2004		2005		2006	
RECURRING PREVENTION INPUT	MONITOR	QUALITY INFORMATION	CHARACTERISTIC VALUE CONTROL	REOCURRENCE PREVENTION CONTROL	RETRIEVE OTHER INFORMATION	SYSTEM & HELP	ADJUST DATE/TIME	END (EXIT)	
EXISTENCE PERIOD OF MACHINE TYPE DATA		SEARCH CONDITIONS INPUT		EXECUTE RETRIEVE	LOAD SPREAD SHEET	PRINT	NO. OF RETRIEVES :3000		
PRODUCT FIELD SELECTION BOX		COUNTERMEASURES + NEW DEFECTS	SELECT ROWS FOR DISPLAY / NON-DISPLAY	RETURN TO REFERENCE ROW WIDTH	SINGLE SHEET FORMAT DISPLAY	FIXED ROW SETTING			
MACHINE SELECTION BOX		CODENO	PLEASE INPUT THE DATE OF THE DEFECT IN SIX OR FOUR DIGITS		OK				
SANDIA			INPUT SIDE	971215 (1997/12/15)					
MACHINE CODE SELECTION BOX			901215 (2000/12/15)						
G02B-00			971215-971220 (1997/12/15~1997/12/20)						
PRODUCTION STEP SELECTION BOX			971228-000110 (1999/12/28~2000/01/10)						
MASS TEST (FIRST)			9804 (1998/4)						
MASS TEST (LAST)			9912-0001 (1999/12~2000/1)						
MASS-PRODUCTION									
(RESPONSIBLE SECTOR SELECTION)									
COMPONENT									
ASSEMBLY									
OTHER									
TECHNOLOGY									
DESIGN									
CALL									
(RETRIEVE TYPES)									
RECURRING PREVENTION NONINPUT									
RECURRING PREVENTION INPUT DATA									
(BOTH (ALL))									
(RETRIEVE METHOD)									
RETRIEVE BY DATE									
RETRIEVE BY CHAIN NO									
RETRIEVE BY MACHINE NO									
PROCESSING ONLY									

PLEASE INPUT THE "START NO" AND "END NO" OF THE CHAIN NO. YOU WISH TO RETRIEVE. PLEASE INPUT ONLY THE "START NO" IF THE NUMBER IS ONE.

INPUT (E.G.) START NO → 10001 or 4F94-110020 etc  
END NO → 10008 or 4F94-110030 etc  
\*) THE NUMBER OF DIGITS OF THE MACHINE NUMBER IS DIFFERENT FOR MASS-PRODUCTION AND NON-MASS-PRODUCTION

START NO  END NO

OK CANCEL

PLEASE INPUT THE "START NO" AND "END NO" OF THE CHAIN NO. YOU WISH TO RETRIEVE. PLEASE INPUT ONLY THE "START NO" IF THE NUMBER IS ONE.

INPUT (E.G.) START NO → 9901-00020  
END NO → 9901-00030  
\*) FOR YEARS AFTER 2000 0001-00030 (2000/1)

START NO  END NO

OK CANCEL

PLEASE INPUT THE DATE OF THE DEFECT IN SIX OR FOUR DIGITS

INPUT SIDE

971215 (1997/12/15)

901215 (2000/12/15)

971215-971220 (1997/12/15~1997/12/20)

971228-000110 (1999/12/28~2000/01/10)

9804 (1998/4)

9912-0001 (1999/12~2000/1)

2030

2032

OK CANCEL

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

[illegible]

22/123

FIG.22

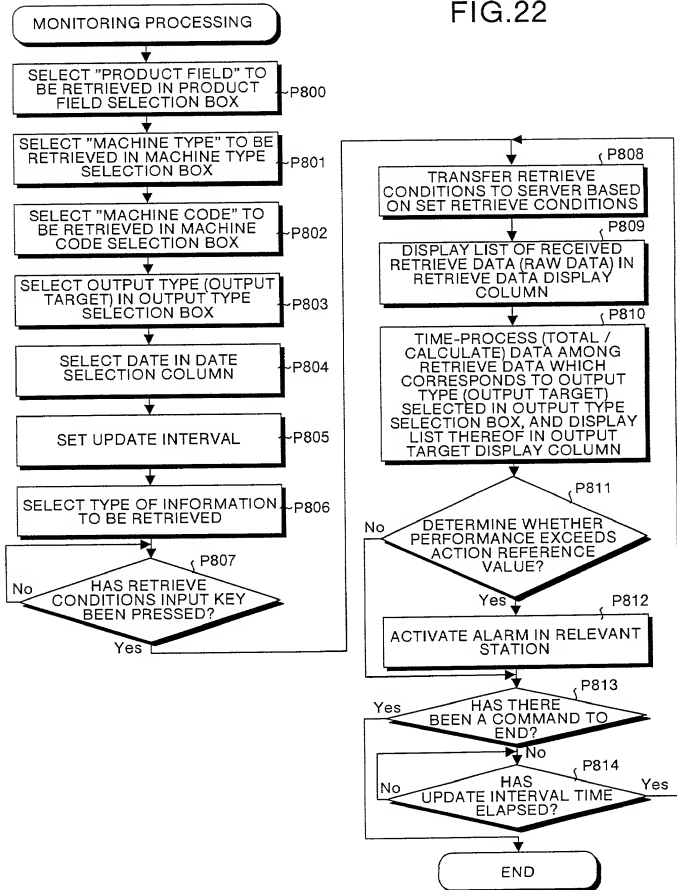


FIG. 23

RETRIEVE CONDITIONS SETTINGS (1)

2002 2003 2004 2005 2006 2100

REOCURRENCE PREVENTION INPUT

MONITOR

QUALITY INFORMATION

CHARACTERISTIC VALUE CONTROL

REOCURRENCE PREVENTION PROGRESS CONTROL

RETRIEVE OTHER INFORMATION

SYSTEM & HELP

ADJUST DATE/TIME (EXIT)

END

EXISTENCE PERIOD OF MACHINE TYPE DATA

PRODUCT FIELD SELECTION BOX

PN

MACHINE SELECTION BOX

SANDIA

MACHINE CODE SELECTION BOX

G028-00

OUTPUT TYPE SELECTION BOX

PRODUCTION QUALITY RESULTS FOR THAT DAY

DEFECT STATUS FOR EACH PROCESS

STATUS FOR EACH DEFECTIVE ITEM

STATUS IN RESPONSIBLE SECTION

STATUS FOR EACH RANK

REFLECT / DELETE STATUS

STATUS FOR EACH DEFECT

UPDATE INTERVAL

DATE OF SPECIFICATION

EXECUTE RETRIEVE

LOAD SPREAD SHEET

PRINT

PROCESSING ONLY

(DISPLAY REFERENCE)

○ OCCURRENCE DATE REFERENCE

○ IMPLEMENTATION DATE REFERENCE

2101

2102

2103

2104

2105

2106

2108

2107

2120

2115

2109

JULY 1998

SUN	MON	TUE	WED	THU	FRI	SAT
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8



FIG. 24

RETRIEVE CONDITIONS SETTINGS (2)

2002 2003 2004 2005 2006 2100

2101 REOCCURRENCE PREVENTION INPUT MONITOR

2102 QUALITY INFORMATION

2103 CHARACTERISTIC VALUE CONTROL

2104 REOCCURRENCE PREVENTION PROGRESS CONTROL

2105 RETRIEVE OTHER INFORMATION

2106 SYSTEM & HELP

2107 ADJUST DATE/TIME

2108 END (EXIT)

2109 UPDATE INTERVAL

2110 DATE OF SPECIFICATION

2111 EXECUTE RETRIEVE

2112 LOAD SPREAD SHEET

2113 PRINT

2114 PROCESSING ONLY

2115 (DISPLAY REFERENCE) OCCURRENCE DATE REFERENCE

2116 (IMPLEMENTATION) DATE REFERENCE

2117 EXISTENCE PERIOD OF MACHINE TYPE DATA

2118 PRODUCT FIELD SELECTION BOX

2119 MACHINE SELECTION BOX

2120 SANDIA

2121 MACHINE CODE SELECTION BOX

2122 G028-00

2123 OUTPUT TYPE SELECTION BOX

2124 PRODUCTION QUALITY RESULTS FOR THAT DAY

2125 DEFECT STATUS FOR EACH PROCESS

2126 STATUS FOR EACH DEFECTIVE ITEM

2127 STATUS IN RESPONSIBLE SECTORS

2128 STATUS IN EACH RANK

2129 REJECT /DELETE STATUS

2130 STATUS FOR EACH DEFECT

2131 [JULY] [1998]

SUN	MON	TUE	WED	THU	FRI	SAT
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

PLEASE SELECT WHETHER TO AUTOMATICALLY UPDATE QUALITY STATUS OR NOT. IN CASE OF YES, PLEASE SPECIFY THE TIME INTERVAL

(SETTING UPDATE METHOD)

☒ DO NOT UPDATE AUTOMATICALLY

☐ UPDATE AUTOMATICALLY

AUTOMATIC UPDATE TIME INTERVAL

EVERY ... MINUTES

SPECIFY IN UNITS OF 1 TO 60 MINUTES

SET OK

CANCEL

REOCCURRENCE PREVENTION INPUT	MONITOR	QUALITY INFORMATION	CHARACTERISTIC VALUE CONTROL	REOCCURRENCE PREVENTION CONTROL	RETRIEVE OTHER INFORMATION	SYSTEM & HELP	ADJUST DATE/TIME (EXIT)
EXISTENCE PERIOD OF MACHINE TYPE DATA		UPDATE INTERVAL		EXECUTE RETRIEVE		PROCESSING ONLY	
PRODUCT FIELD SELECTION BOX PRN		DATE OF SPECIFICATION		LOAD SPREAD SHEET		PRINT	
MACHINE SELECTION BOX SANDIA		.....		.....		.....	
MACHINE CODE SELECTION BOX		.....		.....		.....	
G028-00		.....		.....		.....	
OUTPUT TYPE SELECTION BOX		NOI		TOTAL		GRAPH	
PROCESSING QUALITY RESULTS FOR THAT DAY DEFECT STATUS FOR EACH PROCESS		1		35		100.0	
STATUS FOR EACH DEFECTS REJECTED SECTIONS IN RESPONSIBLE SECTIONS		2		22		62.9	
STATUS IN EACH RANK REJECT / DELETE STATUS STATUS FOR EACH DEFECT		3		21		60.0	
1		4		52.45		62.86	
2		5		0.571		0.571	
3		6		0.500		0.500	
4		7		32		0.8	
5		8		9		10	
6		11		12		13	
7		14		15		16	
8		17		18		19	
9		20		21		22	
10		23		24		25	
11		26		27		28	
12		29		30		31	
13		32		33		34	
14		35		36		37	
15		38		39		40	
16		41		42		43	
17		44		45		46	
18		47		48		49	
19		50		51		52	
20		53		54		55	
21		56		57		58	
22		59		60		61	
23		62		63		64	
24		65		66		67	
25		68		69		70	
26		71		72		73	
27		74		75		76	
28		77		78		79	
29		80		81		82	
30		83		84		85	
31		86		87		88	
32		89		90		91	
33		92		93		94	
34		95		96		97	
35		98		99		100	
36		101		102		103	
37		104		105		106	
38		107		108			

JULY ▼ 1998 ▼

SUN	MON	TUE	WED	THU	FRI	SAT
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

JULY ▼ 1998 ▼

SUN	MON	TUE	WED	THU	FRI	SAT
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

CHRONOLOGICAL DATA FOR EACH OUTPUT MENU

NO	PROCESS	NUMBER OF CASES	GRAPH	RATIO(%)	8	9	10	11	12	13	14	15	16	17	18	19	20
0	TOTAL	27		100.0	2	4	2	2	7	1	1	5	2				
1	IMAGE CHECK 01	17		63.0	1	2	2	2	5	1	4	2					
2	COMPLETION CHECK 01	6		22.2	1	1	2				1	1					
3	MACHINE CHECK 01	3		11.1	1	1			1		1						
4	MAIN ASSEMBLY 01	1		3.7					1								

FIG.26A

DEFECT  
STATUS FOR  
EACH  
PROCESS

NO	DEFECTIVE ITEM	NUMBER OF CASES	GRAPH	RATIO(%)	8	9	10	11	12	13	14	15	16	17	18	19	20
0	TOTAL	27		100.0	2	4	2	2	7	1	1	5	2				
1	IMAGE DEFECT	15		55.3	1	2	2	2	5	1	3	2					
2	OTHER	2		7.4			1				1						
3	OPERATION DEFECT	2		7.4	1						1						
4	ASSEMBLY DEFECT	2		7.4					1		1						
5	CHARACTERISTICS VALUE DEFECT	1		3.7					1								

FIG.26B

STATUS FOR  
EACH  
DEFECTIVE  
ITEM

NO	RESPONSIBLE SECTOR	NUMBER OF CASES	GRAPH	RATIO(%)	8	9	10	11	12	13	14	15	16	17	18	19	20
0	TOTAL	27		100.0	2	4	2	2	7	1	1	5	2				
1	NOT INPUT IN RESPONSIBLE SECTOR	26		96.3	2	4	2	2	7	1	1	5	2				
2	TECHNOLOGY	1		3.7									1				

FIG.26C

STATUS IN  
RESPONSIBLE  
SECTORS

NO	RANK	NUMBER OF CASES	GRAPH	RATIO(%)	8	9	10	11	12	13	14	15	16	17	18	19	20
0	TOTAL	27		100.0	2	4	2	2	7	1	1	5	2				
1	NONE	27		100.0	2	4	2	2	7	1	1	5	2				

FIG.26D

STATUS IN  
EACH RANK

NO	DATA ITEM	NUMBER OF CASES	GRAPH	RATIO(%)	8	9	10	11	12	13	14	15	16	17	18	19	20
1	NO. OF (COMPLETED) PRODUCTS	38		100.0	1	5	5	5	1	7	5	3	5	1			
2	NO. OF REJECTS	4		10.5	1				1				1	1			
3	NO. OF REJECTS CANCELED	4		10.0				1	1				1	1			

FIG.26E

REJECT /  
DELETE  
STATUS

NO	NATURE OF DEFECT	NUMBER OF CASES	GRAPH	RATIO(%)	8	9	10	11	12	13	14	15	16	17	18	19	20
0	TOTAL	27		100.0	2	4	2	2	7	1	1	5	2				
1	LATERAL WHITE STRIPE	5		18.5		1		1		1	1	1					
2	ABNORMAL IMAGE	4		14.8		1			2			1					
3	NOISE IMAGE	4		14.8				1		2			1				
4	MANUAL	3		11.1	1		1					1					
5	MISALIGNED PRINTING	2		7.4	1					1							

FIG.26F

STATUS FOR  
EACH  
DEFECT

FIG.27

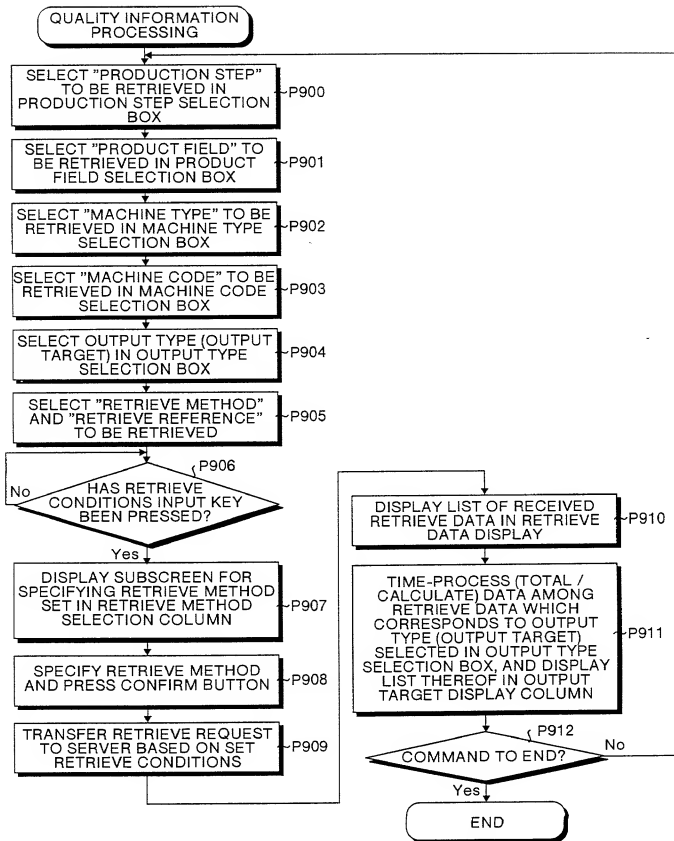


FIG.28

RETRIEVE CONDITIONS SETTINGS (1)										2200	
IN-PROCESSING QUALITY MONITORING SYSTEM [QUALITY INFORMATION]											
2202		2203		2204		2205		2206		2207	
REOCCURRENCE PREVENTION INPUT		MONITOR		QUALITY INFORMATION		CHARACTERISTIC VALUE CONTROL		REOCCURRENCE PREVENTION PROGRESS CONTROL		RETRIEVE OTHER INFORMATION	
EXISTENCE PERIOD OF MACHINE TYPE DATA				INPUT SEARCH CONDITIONS				EXECUTE RETRIEVE		LOAD SPREAD SHEET	
PRODUCTION STEP SELECTION BOX										PRINT	
TRIAL DESIGN TRIAL QUALITY TEST IMPROVE PROFICIENCY TRIAL PROFICIENCY										ADJUST DATE/TIME (EXIT)	
PRODUCT FIELD SELECTION BOX										PROCESSING ONLY	
PRN										2214	
MACHINE SELECTION BOX											
SANDIA											
MACHINE CODE SELECTION BOX											
G020-00											
OUTPUT TYPE SELECTION BOX											
QUALITY TREND DEFECT STATUS FOR EACH PROCESS STATUS FOR EACH DEFECTIVE ITEM STATUS IN RESPONSIBLE SECTORS STATUS IN EACH RANK REJECT / DELETE STATUS STATUS FOR EACH DEFECT											
(RETRIEVE METHOD)											
<input type="radio"/> RETRIEVE BY DATE <input type="radio"/> RETRIEVE BY CHAIN NO <input type="radio"/> RETRIEVE BY MACHINE NO											
(RETRIEVE REFERENCE)											
<input type="radio"/> OCCURRENCE DATA <input type="radio"/> REFERENCE <input type="radio"/> COMPLETION DATA <input type="radio"/> REFERENCE											

**FIG. 29**

**RETRIEVE CONDITIONS SETTINGS (2)**

**IN-PROCESSING QUALITY MONITORING SYSTEM [QUALITY INFORMATION]**

2209

REOCCURRENCE PREVENTION INPUT

MONITOR

QUALITY INFORMATION

CHARACTERISTIC VALUE CONTROL

REOCCURRENCE PREVENTION PROGRESS CONTROL

RETRIEVE OTHER INFORMATION

SYSTEM & HELP

ADJUST DATE/TIME

INPUT SEARCH CONDITIONS

INPUT RETRIEVE PERIOD

PLEASE INPUT THE DATES OF THE RETRIEVE PERIOD USING SIX OR FOUR DIGITS

INPUT SIDE

97/12/15 (1997/12/15)

2000/12/15 (2000/12/15)

97/12/15~97/12/20 (1997/12/15~1997/12/20)

99/12/28~00/01/10 (1999/12/28~2000/01/10)

98/04 (1998/4)

99/12~00/01 (1999/12~2000/1)

NB: MAXIMUM RETRIEVE PERIOD IS SIX MONTHS

2214

2210

2212

INPUT RETRIEVE PERIOD

PLEASE INPUT THE "START\_NO" AND "END\_NO" OF THE MACHINE NO. YOU WISH TO RETRIEVE. PLEASE INPUT ONLY THE "START\_NO" IF THE NUMBER IS ONE.

INPUT (E.G.)

START\_NO → 10001 or 4F94-110020 etc

END\_NO → 10008 or 4F94-110030 etc

※) THE NUMBER OF DIGITS OF THE MACHINE NUMBER IS DIFFERENT FOR MASS-PRODUCTION AND NON-MASS-PRODUCTION

START\_NO ~ END\_NO

OK

CANCEL

INPUT RETRIEVE PERIOD

PLEASE INPUT THE "START\_NO" AND "END\_NO" OF THE CHAIN NO. YOU WISH TO RETRIEVE. PLEASE INPUT ONLY THE "START\_NO" IF THE NUMBER IS ONE.

INPUT (E.G.)

START\_NO → 9901-00020

END\_NO → 9901-00030

※) FOR YEARS AFTER 2000

0001-00030 (2000/1)

START\_NO ~ END\_NO

OK

CANCEL

EXISTENCE PERIOD OF MACHINE TYPE DATA

PRODUCTION STEP SELECTION BOX

MASS TEST (FIRST)

MASS TEST (LAST)

MASS-PRODUCTION

PRODUCT FIELD SELECTION BOX

PRN BOX

MACHINE SELECTION BOX

SANDIA

MACHINE CODE SELECTION BOX

G070-00 BOX

OUTPUT TYPE SELECTION BOX

QUALITY TREND

DEFECT STATUS FOR EACH PROCESS

STATUS FOR EACH DEFECTIVE ITEM

STATUS IN RESPONSIBLE SECTORS

STATUS IN EACH RANK

REJECT / DELETE STATUS

STATUS FOR EACH DEFECT

RETRIEVE METHOD

RETRIEVE BY DATE

RETRIEVE BY CHAIN NO.

RETRIEVE BY MACHINE NO.

RETRIEVE REFERENCE

REFERENCE

COMPLETION DATA

REFERENCE

FIG.30

SPECIFIC RETRIEVE CONDITIONS DATA DISPLAY SCREEN

IN-PROCESSING QUALITY MONITORING SYSTEM [QUALITY INFORMATION]

REOCCURRENCE PREVENTION INPUT	MONITOR	QUALITY INFORMATION	CHARACTERISTIC VALUE CONTROL	REOCCURRENCE PREVENTION PROGRAM CONTROL	RETRIEVE OTHER INFORMATION	SYSTEM & HELP	ADJUST DATE/TIME (EXIT)
EXISTENCE PERIOD OF MACHINE TYPE DATA 980210-980727		INPUT SEARCH CONDITIONS 9807		EXECUTE RETRIEVE	LOAD SPREAD SHEET	PRINT	PROCESSING ONLY
PRODUCTION STEP SELECTION BOX MASS TEST 1 (FIRST) MASS TEST 1 (LAST) MASS-PRODUCTION		<input type="checkbox"/> CHANGES ARE NOT <input type="checkbox"/> NON-REOCCURRENCE <input type="checkbox"/> CHECK IS NOT INCLUDED	<input type="checkbox"/> CUMULATIVE INDICATION <input type="checkbox"/> RETRIEVE TIME 18:49:55				
PRODUCT FIELD SELECTION BOX		2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724 2725 2726 2727 2728 2729 2730 2731 2732 2733 2734 2735 2736 2737 2738 2739 2740 2741 2742 2743 2744 2745 2746 2747 2748 2749 2750 2751 2752 2753 2754 2755 2756 2757 2758 2759 2760 2761 2762 2763 2764 2765 2766 2767 2768 2769 2770 2771 2772 2773 2774 2775 2776 2777 2778 2779 2780 2781 2782 2783 2784 2785 2786 2787 2788 2789 2790 2791 2792 2793 2794 2795 2796 2797 2798 2799 2800 2801 2802 2803 2804 2805 2806 2807 2808 2809 2810 2811 2812 2813 2814 2815 2816 2817 2818 2819 2820 2821 2822 2823 2824 2825 2826 2827 2828 2829 2830 2831 2832 2833 2834 2835 2836 2837 2838 2839 2840 2841 2842 2843 2844 2845 2846 2847 2848 2849 2850 2851 2852 2853 2854 2855 2856 2857 2858 2859 2860 2861 2862 2863 2864 2865 2866 2867 2868 2869 2870 2871 2872 2873 2874 2875 2876 2877 2878 2879 2880 2881 2882 2883 2884 2885 2886 2887 2888 2889 2890 2891 2892 2893 2894 2895 2896 2897 2898 2899 2900 2901 2902 2903 2904 2905 2906 2907 2908 2909 2910 2911 2912 2913 2914 2915 2916 2917 2918 2919 2920 2921 2922 2923 2924 2925 2926 2927 2928 2929 2930 2931 2932 2933 2934 2935 2936 2937 2938 2939 2940 2941 2942 2943 2944 2945 2946 2947 2948 2949 2950 2951 2952 2953 2954 2955 2956 2957 2958 2959 2960 2961 2962 2963 2964 2965 2966 2967 2968 2969 2970 2971 2972 2973 2974 2975 2976 2977 2978 2979 2980 2981 2982 2983 2984 2985 2986 2987 2988 2989 2990 2991 2992 2993 2994 2995 2996 2997 2998 2999 3000 3001 3002 3003 3004 3005 3006 3007 3008 3009 3010 3011 3012 3013 3014 3015 3016 3017 3018 3019 3020 3021 3022 3023 3024 3025 3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037 3038 3039 3040 3041 3042 3043 3044 3045 3046 3047 3048 3049 3050 3051 3052 3053 3054 3055 3056 3057 3058 3059 3060 3061 3062 3063 3064 3065 3066 3067 3068 3069 3070 3071 3072 3073 3074 3075 3076 3077 3078 3079 3080 3081 3082 3083 3084 3085 3086 3087 3088 3089 3090 3091 3092 3093 3094 3095 3096 3097 3098 3099 3100 3101 3102 3103 3104 3105 3106 3107 3108 3109 3110 3111 3112 3113 3114 3115 3116 3117 3118 3119 3120 3121 3122 3123 3124 3125 3126 3127 3128 3129 3130 3131 3132 3133 3134 3135 3136 3137 3138 3139 3140 3141 3142 3143 3144 3145 3146 3147 3148 3149 3150 3151 3152 3153 3154 3155 3156 3157 3158 3159 3160 3161 3162 3163 3164 3165 3166 3167 3168 3169 3170 3171 3172 3173 3174 3175 3176 3177 3178 3179 3180 3181 3182 3183 3184 3185 3186 3187 3188 3189 3190 3191 3192 3193 3194 3195 3196 3197 3198 3199 3200 3201 3202 3203 3204 3205 3206 3207 3208 3209 3210 3211 3212 3213 3214 3215 3216 3217 3218 3219 3220 3221 3222 3223 3224 3225 3226 3227 3228 3229 3230 3231 3232 3233 3234 3235 3236 3237 3238 3239 3240 3241 3242 3243 3244 3245 3246 3247 3248 3249 3250 3251 3252 3253 3254 3255 3256 3257 3258 3259 3260 3261 3262 3263 3264 3265 3266 3267 3268 3269 3270 3271 3272 3273 3274 3275 3276 3277 3278 3279 3280 3281 3282 3283 3284 3285 3286 3287 3288 3289 3290 3291 3292 3293 3294 3295 3296 3297 3298 3299 3300 3301 3302 3303 3304 3305 3306 3307 3308 3309 3310 3311 3312 3313 3314 3315 3316 3317 3318 3319 3320 3321 3322 3323 3324 3325 3326 3327 3328 3329 3330 3331 3332 3333 3334 3335 3336 3337 3338 3339 3340 3341 3342 3343 3344 3345 3346 3347 3348 3349 3350 3351 3352 3353 3354 3355 3356 3357 3358 3359 3360 3361 3362 3363 3364 3365 3366 3367 3368 3369 3370 3371 3372 3373 3374 3375 3376 3377 3378 3379 3380 3381 3382 3383 3384 3385 3386 3387 3388 3389 3390 3391 3392 3393 3394 3395 3396 3397 3398 3399 3400 3401 3402 3403 3404 3405 3406 3407 3408 3409 3410 3411 3412 3413 3414 3415 3416 3417 3418 3419 3420 3421 3422 3423 3424 3425 3426 3427 3428 3429 3430 3431 3432 3433 3434 3435 3436 3437 3438 3439 3440 3441 3442 3443 3444 3445 3446 3447 3448 3449 3450 3451 3452 3453 3454 3455 3456 3457 3458 3459 3460 3461 3462 3463 3464 3465 3466 3467 3468 3469 3470 3471 3472 3473 3474 3475 3476 3477 3478 3479 3480 3481 3482 3483 3484 3485 3486 3487 3488 3489 3490 3491 3492 3493 3494 3495 3496 3497 3498 3499 3500 3501 3502 3503 3504 3505 3506 3507 3508 3509 3510 3511 3512 3513 3514 3515 3516 3517 3518 3519 3520 3521 3522 3523 3524 3525 3526 3527 3528 3529 3530 3531 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 3544 3545 3546 3547 3548 3549 3550 3551 3552 3553 3554 3555 3556 3557 3558 3559 3560 3561 3562 3563 3564 3565 3566 3567 3568 3569 3570 3571 3572 3573 3574 3575 3576 3577 3578 3579 3580 3581 3582 3583 3584 3585 3586 3587 3588 3589 3590 3591 3592 3593 3594 3595 3596 3597 3598 3599 3600 3601 3602 3603 3604 3605 3606 3607 3608 3609 3610 3611 3612 3613 3614 3615 3616 3617 3618 3619 3620 3621 3622 3623 3624 3625 3626 3627 3628 3629 3630 3631 3632 3633 3634 3635 3636 3637 3638 3639 3640 3641 3642 3643 3644 3645 3646 3647 3648 3649 3650 3651 3652 3653 3654 3655 3656 3657 3658 3659 3660 3661 3662 3663 3664 3665 3666 3667 3668 3669 3670 3671 3672 3673 3674 3675 3676 3677 3678 3679 3680 3681 3682 3683 3684 3685 3686 3687 3688 3689 3690 3691 3692 3693 3694 3695 3696 3697 3698 3699 3700 3701 3702 3703 3704 3705 3706 3707 3708 3709 3710 3711 3712 3713 3714 3715 3716 3717 3718 3719 3720 3721 3722 3723 3724 3725 3726 3727 3728 3729 3730 3731 3732 3733 3734 3735 3736 3737 3738 3739 3740 3741 3742 3743 3744 3745 3746 3747 3748 3749 3750 3751 3752 3753 3754 3755 3756 3757 3758 3759 3760 3761 3762 3763 3764 3765 3766 3767 3768 3769 3770 3771 3772 3773 3774 3775 3776 3777 3778 3779 3780 3781 3782 3783 3784 3785 3786 3787 3788 3789 3790 3791 3792 3793 3794 3795 3796 3797 3798 3799 3800 3801 3802 3803 3804 3805 3806 3807 3808 3809 3810 3811 3812 3813 3814 3815 3816 3817 3818 3819 3820 3821 3822 3823 3824 3825 3826 3827 3828 3829 3830 3831 3832 3833 3834 3835 3836 3837 3838 3839 3840 3841 3842 3843 3844 3845 3846 3847 3848 3849 3850 3851 3852 3853 3854 3855 3856 3857 3858 3859 3860 3861 3862 3863 3864 3865 3866 3867 3868 3869 3870 3871 3872 3873 3874 3875 3876 3877 3878 3879 3880 3881 3882 3883 3884 3885 3886 3887 3888 3889 3890 3891 3892 3893 3894 3895 3896 3897 3898 3899 3900 3901 3902 3903 3904 3905 3906 3907 3908 3909 3910 3911 3912 3913 3914 3915 3916 3917 3918 3919 3920 3921 3922 3923 3924 3925 3926 3927 3928 3929 3930 3931 3932 3933 3934 3935 3936 3937 3938 3939 3940 3941 3942 3943 3944 3945 3946 3947 3948 3949 3950 3951 3952 3953 3954 3955 3956 3957 3958 3959 3960 3961 3962 3963 3964 3965 3966 3967 3968 3969 3970 3971 3972 3973 3974 3975 3976 3977 3978 3979 3980 3981 3982 3983 3984 3985 3986 3987 3988 3989 3990 3991 3992 3993 3994 3995 3996 3997 3998 3999 4000 4001 4002 4003 4004 4005 4006 4007 4008 4009 4010 4011 4012 4013 4014 4015 4016 4017 4018 4019 4020 4021 4022 4023 4024 4025 4026 4027 4028 4029 4030 4031 4032 4033 4034 4035 4036 4037 4038 4039 4040 4041 4042 4043 4044 4045 4046 4047 4048 4049 4050 4051 4052 4053 4054 4055 4056 4057 4058 4059 4060 4061 4062 4063 4064 4065 4066 4067 4068 4069 4070 4071 4072 4073 4074 4075 4076 4077 4078 4079 4080 4081 4082 4083 4084 4085 4086 4087 4088 4089 4090 4091 4092 4093 4094 4095 4096 4097 4098 4099 4100 4101 4102 4103 4104 4105 4106 4107 4108 4109 4110 4111 4112 4113 4114 4115 4116 4117 4118 4119 4120 4121 4122 4123 4124 4125 4126 4127 4128 4129 4130 4131 4132 4133 4134 4135 4136 4137 4138 4139 4140 4141 4142 4143 4144 4145 4146 4147 4148 4149 4150 4151 4152 4153 4154 4155 4156 4157 4158 4159 4160 4161 4162 4163 4164 4165 4166 4167 4168 4169 4170 4171 4172 4173 4174 4175 4176 4177 4178 4179 4180 4181 4182 4183 4184 4185 4186 4187 4188 4189 4190 4191 4192 4193 4194 4195 4196 4197 4198 4199 4200 4201 4202 4203 4204 4205 4206 4207 4208 4209 4210 4211 4212 4213 4214 4215 4216 4217 4218 4219 4220 4221 4222 4223 4224 4225 4226 4227 4228 4229 4230 4231 4232 4233 4234 4235 4236 4237 4238 4239 4240 4241 4242 4243 4244 4245 4246 4247 4248 4249 4250 4251 4252 4253 4254 4255 4256 4257 4258 4259 4260 4261 4262 4263 4264 4265 4266 4267 4268 4269 4270 4271 4272 4273 4274 4275 4276 4277 4278 4279 4280 4281 4282 4283 4284 4285 4286 4287 4288 4289 4290 4291 4292 4293 4294 4295 4296 4297 4298 4299 4300 4301 4302 4303 4304 4305 4306 4307 4308 4309 4310 4311 4312 4313 4314 4315 4316 4317 4318 4319 4320 4321 4322 4323 4324 4325 4326 4327 4328 4329 4330 4331 4332 4333 4334 4335 4336 4337 4338 4339 4340 4341 4342 4343 4344 4345 4346 4347 4348 4349 4350 4351 4352 4353 4354 4355 4356 4357 4358 4359 4360 4361 4362 4363 4364 4365 4366 4367 4368 4369 4370 4371 4372 4373 4374 4375 4376 4377 4378 4379 4380 4381 4382 4383 4384 4385 4386 4387 4388 4389 4390 4391 4392 4393 4394 4395 4396 4397 4398 4399 4400 4401 4402 4403 4404 4405 4406 4407 4408 4409 4410 4411 4412 4413 4414 4415 4416 4417 4418 4419 4420 4421 4422 4423 4424 4425 4426 4427 4428 4429 4430 4431 4432 4433 4434 4435 4436 4437 4438 4439 4440 4441 4442 4443 4444 4445 4446 4447 4448 4449 4450 4451 4452 4453 4454 4455 4456 4457 4458 4459 4460 4461 4462 4463 4464 4465 4466 4467 4468 4469 4470 4471 4472 4473 4474 4475 4476 4477 4478 4479 4480 4481 4482 4483 4484 4485 4486 4487 4488 4489 4490 4491 4492 4493 4494 4495 4496 4497 4498 4499 4500 4501 4502 4503 4504 4505 4506 4507 4508 4509 4510 4511 4512 4513 4514 4515 4516 4517 4518 4519 4520 4521 4522 4523 4524 4525 4526 4527 4528 4529 4530 4531 4532 4533 4534 4535 4536 4537 4538 4539 4540 4541 4542 4543 4544 4545 4546 4547 4548 4549 4550 4551 4552 4553 4554 4555 4556 4557 4558 4559 4560 4					

CHRONOLOGICAL DATA FOR EACH OUTPUT MENU

NO	PROCESS	NUMBER OF CASES	GRAPH	RATIO(%)	01	03	06	07	08	09	10	13	14	15	16	17
0	TOTAL	493		100.0	17	41	31	27	26	36	29	22	34	37		
1	IMAGE CHECK 01	380		77.1	14	34	28	22	32	32	20	16	23	28		
2	COMPLETION CHECK 01	85		17.2	1	5	2	2	4	3	3	5	4	8	9	
3	MACHINE CHECK 01	17		3.4	1	1	1	1	1	1	4	1	2			
4	STA(QA)	6		1.2				2	1				1	1		

FIG.31A

DEFECT  
STATUS FOR  
EACH  
PROCESS

NO	DEFECTIVE ITEM	NUMBER OF CASES	GRAPH	RATIO(%)	01	03	06	07	08	09	10	13	14	15	16	17
0	TOTAL	493		100.0	17	41	31	27	26	36	29	22	34	37		
1	IMAGE DEFECT	346		73.8	14	33	28	23	21	27	31	20	16	21	24	
2	OTHER	33		6.7	1					1		2	1	4	5	
3	OPERATION DEFECT	29		5.9			1	2	2	3		2	2	3	4	
4	ASSEMBLY DEFECT	17		3.4		4			2		3	2	1	1		
5	CHARACTERISTICS VALUE DEFECT	15		3.0	2	1	1	1	1	1		1	2	1		

FIG.31B

STATUS FOR  
EACH  
DEFECTIVE  
ITEM

NO	RESPONSIBLE SECTOR	NUMBER OF CASES	GRAPH	RATIO(%)	01	03	06	07	08	09	10	13	14	15	16	17
0	TOTAL	493		100.0	17	41	31	27	26	36	29	22	34	37		
1	NOT INPUT IN RESPONSIBLE SECTOR	471		95.5	17	41	31	25	25	35	34	25	18	31	35	
2	ASSEMBLY	11		2.2				2	1	1		3	1	2		
3	TECHNOLOGY	5		1.0										3		

FIG.31C

STATUS IN  
RESPONSIBLE  
SECTORS

NO	RANK	NUMBER OF CASES	GRAPH	RATIO(%)	01	03	06	07	08	09	10	13	14	15	16	17
0	TOTAL	493		100.0	17	41	31	27	26	36	29	22	34	37		
1	NONE	482		97.8	17	41	31	25	25	36	35	29	20	31	36	
2	ASSEMBLY	7		1.4				2	1					1	2	
3	TECHNOLOGY	2		0.4										1	1	

FIG.31D

STATUS IN  
EACH RANK

NO	DATA ITEM	NUMBER OF CASES	GRAPH	RATIO(%)	01	03	06	07	08	09	10	13	14	15	16	17
1	NO. OF (COMPLETED) PRODUCTS	697		100.0	17	41	31	25	25	36	35	29	20	31	36	
2	NO. OF REJECTS	56		8.0				2	1					1	2	
3	NO. OF REJECTS CANCELED	56		100.0										1	1	

FIG.31E

REJECT/  
DELETE  
STATUS

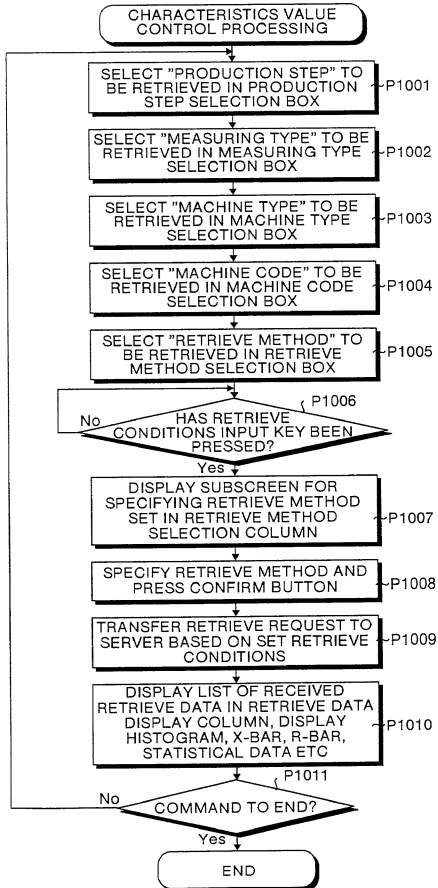
NO	NATURE OF DEFECT	NUMBER OF CASES	GRAPH	RATIO(%)	01	03	06	07	08	09	10	13	14	15	16	17
0	TOTAL	493		100.0	7	41	31	27	26	36	29	22	34	37		
1	LATERAL WHITE STRIPE	133		27.0	1	10	8	3	5	14	11	7	5	9	10	
2	NOISE IMAGE	79		16.0	3	6	2	5	4	6	8	4	6	8		
3	NOISE IMAGE	69		14.0	1	11	5	12	11	5	7	2	4	3		
4	ABNORMAL IMAGE	39		7.9		3	8	1		2	1	1				

FIG.31F

STATUS FOR  
EACH  
DEFECT



FIG.32



☐ ☐ ☐ ☐

☐ ☐ ☐ ☐

## FIG.33

### IN-PROCESSING QUALITY MONITORING SYSTEM [CHARACTERISTIC VALUE CONTROL]

☐ ☐ ☐ ☐

☐ ☐ ☐ ☐

2002

2003

2004

2005

2300

2301

2302

2303

2304

2305

2306

2307

REOCCURENCE  
PREVENTION  
INPUT

MONITOR

QUALITY  
INFORMATION

CHARACTERISTIC  
VALUE CONTROL

REOCCURENCE  
PREVENTION  
CONTROL

RETRIEVE  
OTHER  
INFORMATION

SYSTEM  
&  
HELP

ADJUST  
DATE/TIME  
(EXIT)

NEW INPUT

UPDATE  
DELETE

RETRIEVE/DISPLAY

DATA EXISTENCE  
CONFIRMATION

START ASSEMBLY  
SERIAL NO.

END ASSEMBLY  
SERIAL NO.

START MACHINE NO.

END MACHINE NO.

PRODUCTION STEP  
SELECTION BOX

TRIAL PROFICIENCY  
MASS TEST 1 (FIRST)

MASS TEST 1 (LAST)

MASS TEST 1

MASS PRODUCTION

MEASURE TYPE SELECTION  
BOX

Head GP  
SLIDING POWER

MACHINE SELECTION BOX

SANDIA

MACHINE CODE SELECTION  
BOX

G020-00

(RETRIEVE METHOD)  
○ RETRIEVE BY DATE OF  
MEASUREMENT  
○ RETRIEVE BY ASSEMBLY  
SERIAL NO.  
○ RETRIEVE BY MACHINE NO.

INPUT  
SEARCH  
CONDITIONS

2307

EXECUTE  
RETRIEVE

LOAD SPREAD  
SHEET

PRINT

NUMBER  
OF CASES

GRAPH

RANK

LEFT  
MEASUREMENT

RIGHT  
MEASUREMENT

DIFFERENCE BETWEEN  
LEFT AND RIGHT

AVERAGE

STIPULATIONS

TOP X BAR  
MANAGEMENT DIAGRAM

DOWN R BAR  
MANAGEMENT DIAGRAM

GRAPH UPDATE

UPPER LIMIT

LOWER LIMIT

MINIMUM

MAXIMUM

AVERAGE

R

σ

3σ

Cp

Cpk

FIG.34

2300

IN-PROCESSING QUALITY MONITORING SYSTEM [CHARACTERISTIC VALUE CONTROL]																																																																													
REOCCURRENCE PREVENTION INPUT		MONITOR		QUALITY INFORMATION		CHARACTERISTIC VALUE CONTROL		REOCCURRENCE PREVENTION PROGRESS CONTROL		RETRIEVE WITH THE INFORMATION		SYSTEM & HELP		ADJUST DATE/TIME		END (EXIT)																																																													
NEW INPUT		UPDATE DELETE		RETRIEVE/DISPLAY		INPUT SEARCH CONDITIONS		2307		EXECUTE RETRIEVE		LOAD SPREAD SHEET		PRINT																																																															
<table border="1"> <thead> <tr> <th colspan="2">INPUT RETRIEVE PERIOD</th> <th>LEFT</th> <th>RIGHT</th> <th>INTERFERENCE BETWEEN DIGIT</th> <th>AVERAGE</th> </tr> </thead> <tbody> <tr> <td colspan="2">PLEASE INPUT THE DATES OF THE RETRIEVE PERIOD USING SIX OR FOUR DIGITS</td> <td></td> <td></td> <td><input checked="" type="checkbox"/></td> <td></td> </tr> <tr> <td>NUMBER OF CASE</td> <td></td> <td></td> <td></td> <td>OK</td> <td>WNR BAR (MANAGEMENT DIAGRAM)</td> </tr> <tr> <td></td> <td>INPUT 971215 (1997.12.15)</td> <td></td> <td></td> <td>CANCEL</td> <td></td> </tr> <tr> <td></td> <td>SIDE 001215 (2000.12.15)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>971215-971220 (1997/12/15~1997/12/20)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>991228-000110 (1999/12/28~2000/01/10)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>9804 (1998/4)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>9912-0001 (1999/12~2000/1)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6">NB: MAXIMUM RETRIEVE PERIOD IS SIX MONTHS</td> </tr> </tbody> </table>																		INPUT RETRIEVE PERIOD		LEFT	RIGHT	INTERFERENCE BETWEEN DIGIT	AVERAGE	PLEASE INPUT THE DATES OF THE RETRIEVE PERIOD USING SIX OR FOUR DIGITS				<input checked="" type="checkbox"/>		NUMBER OF CASE				OK	WNR BAR (MANAGEMENT DIAGRAM)		INPUT 971215 (1997.12.15)			CANCEL			SIDE 001215 (2000.12.15)						971215-971220 (1997/12/15~1997/12/20)						991228-000110 (1999/12/28~2000/01/10)						9804 (1998/4)						9912-0001 (1999/12~2000/1)					NB: MAXIMUM RETRIEVE PERIOD IS SIX MONTHS					
INPUT RETRIEVE PERIOD		LEFT	RIGHT	INTERFERENCE BETWEEN DIGIT	AVERAGE																																																																								
PLEASE INPUT THE DATES OF THE RETRIEVE PERIOD USING SIX OR FOUR DIGITS				<input checked="" type="checkbox"/>																																																																									
NUMBER OF CASE				OK	WNR BAR (MANAGEMENT DIAGRAM)																																																																								
	INPUT 971215 (1997.12.15)			CANCEL																																																																									
	SIDE 001215 (2000.12.15)																																																																												
	971215-971220 (1997/12/15~1997/12/20)																																																																												
	991228-000110 (1999/12/28~2000/01/10)																																																																												
	9804 (1998/4)																																																																												
	9912-0001 (1999/12~2000/1)																																																																												
NB: MAXIMUM RETRIEVE PERIOD IS SIX MONTHS																																																																													
<table border="1"> <thead> <tr> <th colspan="2">INPUT RETRIEVE PERIOD</th> <th>2311</th> <th>2312</th> </tr> </thead> <tbody> <tr> <td colspan="2">PLEASE INPUT THE "START_NO" AND "END_NO" OF THE CHAIN NO. YOU WISH TO RETRIEVE. PLEASE INPUT ONLY THE "START_NO" IF THE NUMBER IS ONE.</td> <td></td> <td></td> </tr> <tr> <td colspan="2">INPUT(E.G.) START_NO → 10001 or 4F94-110020 etc END_NO → 10001 or 4F94-110030 etc ※) THE NUMBER OF DIGITS OF THE MACHINE NUMBER IS DIFFERENT FOR MASS-PRODUCTION AND NON-MASS-PRODUCTION</td> <td></td> <td></td> </tr> <tr> <td colspan="2">START_NO ~ END_NO</td> <td></td> <td></td> </tr> <tr> <td colspan="2">OK</td> <td></td> <td></td> </tr> <tr> <td colspan="2">CANCEL</td> <td></td> <td></td> </tr> </tbody> </table>																		INPUT RETRIEVE PERIOD		2311	2312	PLEASE INPUT THE "START_NO" AND "END_NO" OF THE CHAIN NO. YOU WISH TO RETRIEVE. PLEASE INPUT ONLY THE "START_NO" IF THE NUMBER IS ONE.				INPUT(E.G.) START_NO → 10001 or 4F94-110020 etc END_NO → 10001 or 4F94-110030 etc ※) THE NUMBER OF DIGITS OF THE MACHINE NUMBER IS DIFFERENT FOR MASS-PRODUCTION AND NON-MASS-PRODUCTION				START_NO ~ END_NO				OK				CANCEL																																							
INPUT RETRIEVE PERIOD		2311	2312																																																																										
PLEASE INPUT THE "START_NO" AND "END_NO" OF THE CHAIN NO. YOU WISH TO RETRIEVE. PLEASE INPUT ONLY THE "START_NO" IF THE NUMBER IS ONE.																																																																													
INPUT(E.G.) START_NO → 10001 or 4F94-110020 etc END_NO → 10001 or 4F94-110030 etc ※) THE NUMBER OF DIGITS OF THE MACHINE NUMBER IS DIFFERENT FOR MASS-PRODUCTION AND NON-MASS-PRODUCTION																																																																													
START_NO ~ END_NO																																																																													
OK																																																																													
CANCEL																																																																													
<table border="1"> <thead> <tr> <th colspan="2">INPUT RETRIEVE PERIOD</th> <th>2311</th> <th>2312</th> </tr> </thead> <tbody> <tr> <td colspan="2">PLEASE INPUT THE "START_NO" AND "END_NO" OF THE CHAIN NO. YOU WISH TO RETRIEVE. PLEASE INPUT ONLY THE "START_NO" IF THE NUMBER IS ONE.</td> <td></td> <td></td> </tr> <tr> <td colspan="2">INPUT(E.G.) START_NO → 9801-00020 END_NO → 9801-00030 ※) FOR YEARS AFTER 2000 0001-00030 (2000/1)</td> <td></td> <td></td> </tr> <tr> <td colspan="2">START_NO ~ END_NO</td> <td></td> <td></td> </tr> <tr> <td colspan="2">OK</td> <td></td> <td></td> </tr> <tr> <td colspan="2">CANCEL</td> <td></td> <td></td> </tr> </tbody> </table>																		INPUT RETRIEVE PERIOD		2311	2312	PLEASE INPUT THE "START_NO" AND "END_NO" OF THE CHAIN NO. YOU WISH TO RETRIEVE. PLEASE INPUT ONLY THE "START_NO" IF THE NUMBER IS ONE.				INPUT(E.G.) START_NO → 9801-00020 END_NO → 9801-00030 ※) FOR YEARS AFTER 2000 0001-00030 (2000/1)				START_NO ~ END_NO				OK				CANCEL																																							
INPUT RETRIEVE PERIOD		2311	2312																																																																										
PLEASE INPUT THE "START_NO" AND "END_NO" OF THE CHAIN NO. YOU WISH TO RETRIEVE. PLEASE INPUT ONLY THE "START_NO" IF THE NUMBER IS ONE.																																																																													
INPUT(E.G.) START_NO → 9801-00020 END_NO → 9801-00030 ※) FOR YEARS AFTER 2000 0001-00030 (2000/1)																																																																													
START_NO ~ END_NO																																																																													
OK																																																																													
CANCEL																																																																													
<table border="1"> <thead> <tr> <th colspan="2">MEASURE TYPE SELECTION</th> <th>Head GP BOX</th> <th>SLIDING POWER</th> <th>MACHINE SELECTION BOX</th> <th>SANDA</th> <th>MACHINE CODE SELECTION BOX</th> <th>G020-00</th> <th>[RETRIEVE METHOD]</th> </tr> </thead> <tbody> <tr> <td colspan="2">TRIAL PROFICIENCY</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>RETRIEVE BY DATE OF MEASUREMENT</td> </tr> <tr> <td colspan="2">MASS TEST 1 (FIRST)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>RETRIEVE BY ASSEMBLY</td> </tr> <tr> <td colspan="2">MASS TEST 2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SERIAL NO</td> </tr> <tr> <td colspan="2">RETRIEVE BY MACHINE NO.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>																		MEASURE TYPE SELECTION		Head GP BOX	SLIDING POWER	MACHINE SELECTION BOX	SANDA	MACHINE CODE SELECTION BOX	G020-00	[RETRIEVE METHOD]	TRIAL PROFICIENCY								RETRIEVE BY DATE OF MEASUREMENT	MASS TEST 1 (FIRST)								RETRIEVE BY ASSEMBLY	MASS TEST 2								SERIAL NO	RETRIEVE BY MACHINE NO.																							
MEASURE TYPE SELECTION		Head GP BOX	SLIDING POWER	MACHINE SELECTION BOX	SANDA	MACHINE CODE SELECTION BOX	G020-00	[RETRIEVE METHOD]																																																																					
TRIAL PROFICIENCY								RETRIEVE BY DATE OF MEASUREMENT																																																																					
MASS TEST 1 (FIRST)								RETRIEVE BY ASSEMBLY																																																																					
MASS TEST 2								SERIAL NO																																																																					
RETRIEVE BY MACHINE NO.																																																																													

FIG.35

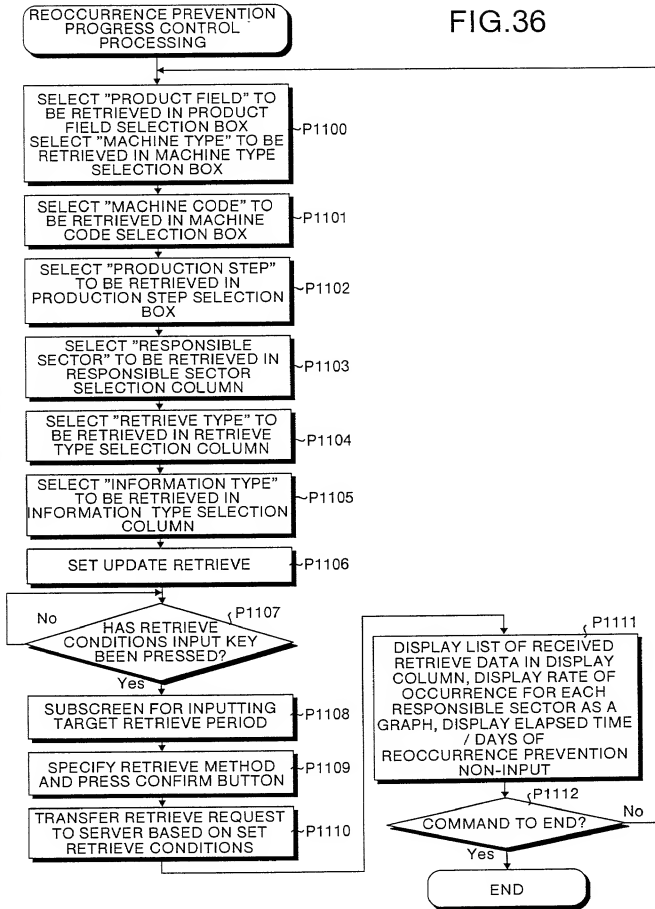
2300

IN-PROCESSING QUALITY MONITORING SYSTEM [CHARACTERISTIC VALUE CONTROL]



REOCCURRENCE PREVENTION INPUT		MONITOR		QUALITY INFORMATION		CHARACTERISTIC VALUE CONTROL		REOCCURRENCE PREVENTION CONTROL		RETRIEVE OTHER INFORMATION		SYSTEM & HELP		ADJUST DATE/TIME (EXIT)	
NEW INPUT		UPDATE DELETE		INPUT SEARCH CONDITIONS		2307		EXECUTE RETRIEVE		LOAD SPREAD SHEET		PRINT			
RETRIEVE/DISPLAY		DATA EXISTENCE CONFIRMATION		NUMBER OF CASES		GRAPH		RANK		LEFT MEASUREMENT		RIGHT MEASUREMENT		DIFFERENCE BETWEEN LEFT AND RIGHT	
				1		1.329-1.463				MEASUREMENT		STIPULATIONS		DOWN BAR MANAGEMENT DIAGRAM	
				3		1.194-1.328									
				60		1.059-1.193									
				106		0.924-1.058									
				●		0.789-0.923									
				0		0.854-0.788									
				0		0.519-0.653									
				0		0.384-0.518									
				0		0.249-0.383									
				0		0.114-0.246									
				0		-0.025-0.113									
				2321		2322		2323		2324		2325		2326	
				2327		2328		2329		2330		2331		2332	
				2333		2334		2335		2336		2337		2338	
				2339		2340		2341		2342		2343		2344	
				2345		2346		2347		2348		2349		2350	
				2351		2352		2353		2354		2355		2356	
				2357		2358		2359		2360		2361		2362	
				2363		2364		2365		2366		2367		2368	
				2369		2370		2371		2372		2373		2374	
				2375		2376		2377		2378		2379		2380	
				2381		2382		2383		2384		2385		2386	
				2387		2388		2389		2390		2391		2392	
				2393		2394		2395		2396		2397		2398	
				2399		2400		2401		2402		2403		2404	
				2405		2406		2407		2408		2409		2410	
				2411		2412		2413		2414		2415		2416	
				2417		2418		2419		2420		2421		2422	
				2423		2424		2425		2426		2427		2428	
				2429		2430		2431		2432		2433		2434	
				2435		2436		2437		2438		2439		2440	
				2441		2442		2443		2444		2445		2446	
				2447		2448		2449		2450		2451		2452	
				2453		2454		2455		2456		2457		2458	
				2459		2460		2461		2462		2463		2464	
				2465		2466		2467		2468		2469		2470	
				2471		2472		2473		2474		2475		2476	
				2477		2478		2479		2480		2481		2482	
				2483		2484		2485		2486		2487		2488	
				2489		2490		2491		2492		2493		2494	
				2495		2496		2497		2498		2499		2500	
				2501		2502		2503		2504		2505		2506	
				2507		2508		2509		2510		2511		2512	
				2513		2514		2515		2516		2517		2518	
				2519		2520		2521		2522		2523		2524	
				2525		2526		2527		2528		2529		2530	
				2531		2532		2533		2534		2535		2536	
				2537		2538		2539		2540		2541		2542	
				2543		2544		2545		2546		2547		2548	
				2549		2550		2551		2552		2553		2554	
				2555		2556		2557		2558		2559		2560	
				2561		2562		2563		2564		2565		2566	
				2567		2568		2569		2570		2571		2572	
				2573		2574		2575		2576		2577		2578	
				2579		2580		2581		2582		2583		2584	
				2585		2586		2587		2588		2589		2590	
				2591		2592		2593		2594		2595		2596	
				2597		2598		2599		2600		2601		2602	
				2603		2604		2605		2606		2607		2608	
				2609		2610		2611		2612		2613		2614	
				2615		2616		2617		2618		2619		2620	
				2621		2622		2623		2624		2625		2626	
				2627		2628		2629		2630		2631		2632	
				2633		2634		2635		2636		2637		2638	
				2639		2640		2641		2642		2643		2644	
				2645		2646		2647		2648		2649		2650	
				2651		2652		2653		2654		2655		2656	
				2657		2658		2659		2660		2661		2662	
				2663		2664		2665		2666		2667		2668	
				2669		2670		2671		2672		2673		2674	
				2675		2676		2677		2678		2679		2680	
				2681		2682		2683		2684		2685		2686	
				2687		2688		2689		2690		2691		2692	
				2693		2694		2695		2696		2697		2698	
				2699		2700		2701		2702		2703		2704	
				2705		2706		2707		2708		2709		2710	
				2711		2712		2713		2714		2715		2716	
				2717		2718		2719		2720		2721		2722	
				2723		2724		2725		2726		2727		2728	
				2729		2730		2731		2732		2733		2734	
				2735		2736		2737		2738		2739		2740	
				2741		2742		2743		2744		2745		2746	
				2747		2748		2749		2750		2751		2752	
				2753		2754		2755		2756		2757		2758	
				2759		2760		2761		2762		2763		2764	
				2765		2766		2767		2768		2769		2770	
				2771		2772		2773		2774		2775		2776	
				2777		2778		2779		2780		2781		2782	
				2783		2784		2785		2786		2787		2788	
				2789		2790		2791		2792		2793		2794	
				2795		2796		2797		2798		2799		2800	
				2801		2802		2803		2804		2805		2806	
				2807		2808		2809		2810		2811		2812	
				2813		2814		2815		2816		2817		2818	
				2819		2820		2821		2822		2823		2824	
				2825		2826		2827		2828		2829		2830	
				2831		2832		2833		2834		2835		2836	
				2837		2838		2839		2840		2841		2842	
				2843		2844		2845		2846		2847		2848	
				2849		2850		2851		2852		2853		2854	
				2855		2856		2857		2858		2859		2860	
				2861		2862		2863		2864		2865		2866	
				2867		2868		2869		2870		2871		2872	
				2873		2874		2875		2876		2877		2878	
				2879		2880		2881		2882		2883		2884	
				2885		2886		2887		2888		2889		2890	
				2891		2892		2893		2894		2895		2896	
				2897		2898		2899		2900		2901		2902	
				2903		2904		2905		2906		2907		2908	
				2909		2910		2911		2912		2913		2914	
				2915		2916		2917		2918		2919		2920	
				2921		2922		2923		2924		2925		2926	
				2927		2928		2929		2930		2931		2932	
				2933		2934		2935		2936		2937		2938	
				2939		2940		2941		2942		2943		2944	
				2945		2946		2947		2948		2949		2950	
				2951		2952		2953		2954		2955		2956	
				2957											

FIG.36



RETRIEVE CONDITIONS SETTINGS (1)

IN-PROCESSING QUALITY MONITORING SYSTEM [REOCCURRENCE PREVENTION PROGRESS CONTROL]

2002

REOCCURRENCE PREVENTION INPUT

MONITOR

2003

EXISTENCE PERIOD OF MACHINE TYPE DATA

PRODUCT FIELD SELECTION BOX

2401

PRN

2402

MACHINE SELECTION BOX

SANDIA

2403

MACHINE CODE SELECTION BOX

G020-00

2404

PRODUCTION STEP SELECTION BOX

TRIAL DESIGN

TRIAL CAPABILITY TEST

IMPROVE PROFICIENCY

TRIAL PROFICIENCY

MASS-TEST(FIRST)

2405

RESPONSIBLE SECTOR SELECTION

O COMPONENT

O ASSEMBLY

O OTHER

O TECHNOLOGY

O DESIGN

O CALL

(RETRIEVE TYPES)

O REOCCURRENCE PREVENTION NONINPUT DATA

O REOCCURRENCE PREVENTION INPUT DATA (BOTH (ALL))

(INFORMATION TYPE)

O PROCESSING INFORMATION ONLY

O NON-PROCESSING INFORMATION ONLY

2406

2407

2408

2400

INPUT SEARCH CONDITIONS

EXECUTE RETRIEVE

LOAD SPREAD SHEET

PRINT

SET UPDATE RETRIEVE

MANUAL UPDATE

2409

2411

2411

2409

FIG. 37

FIG.38

RETRIEVE CONDITIONS SETTINGS (2)

IN-PROCESSING QUALITY MONITORING SYSTEM [REOCCURRENCE PREVENTION PROGRESS CONTROL]

REOCCURRENCE PREVENTION INPUT	MONITOR	QUALITY INFORMATION	CHARACTERISTIC VALUE CONTROL	REOCCURRENCE PREVENTION PROGRESS CONTROL	RETRIEVE OTHER INFORMATION	SYSTEM & HELP	ADJUST DATE/TIME	END (EXIT)
-------------------------------	---------	---------------------	------------------------------	--	----------------------------	---------------	------------------	------------

2401 EXISTENCE PERIOD OF MACHINE TYPE DATA  
980210-980729

2402 PRODUCT FIELD SELECTION BOX

2403 PRN  
SANDIA

2404 MACHINE CODE SELECTION BOX  
G020-00

2405 PRODUCTION STEP SELECTION BOX  
TRIAL DESIGN  
TRIAL CAPABILITY TEST  
IMPROVE PROFICIENCY  
TRIAL PROFICIENCY  
MASS-TEST(FIRST)

2406 (RESPONSIBLE SECTOR SELECTION)  
☐ COMPONENT  
☐ ASSEMBLY  
☐ OTHER  
☐ TECHNOLOGY  
☒ DESIGN  
☐ ALL

2407 (RETRIEVE TYPES)  
☐ REOCCURRENCE PREVENTION NONINPUT DATA  
☐ REOCCURRENCE PREVENTION INPUT DATA  
☒ BOTH (ALL)  
☐ (INFORMATION TYPE)  
☒ PROCESSING INFORMATION ONLY  
☐ NON-PROCESSING INFORMATION ONLY

2411 INPUT SEARCH CONDITIONS

2410 INPUT RETRIEVE PERIOD  
PLEASE INPUT THE DATES OF THE RETRIEVE PERIOD USING SIX OR FOUR DIGITS

INPUT	971215 (1997.12.15)	OK
SIDE	001215 (2000.12.15)	CANCEL
	971215-971220 (1997/12/15~1997/12/20)	
	991228-000110 (1999/12/28~2000/01/10)	
	9804 (1998/4)	
	9912-0001 (1999/12~2000/1)	

NB: MAXIMUM RETRIEVE PERIOD IS SIX MONTHS

2412

2409 SETTING UPDATE METHOD

PLEASE SELECT WHETHER TO AUTOMATICALLY UPDATE REOCCURRENCE PREVENTION INFORMATION OR NOT. IF SELECTING AUTOMATIC UPDATE, PLEASE SPECIFY THE TIME INTERVAL

☒ DO NOT UPDATE AUTOMATICALLY  
☐ UPDATE AUTOMATICALLY

(SETTING UPDATE METHOD)

AUTOMATIC UPDATE TIME INTERVAL

EVERY ... MINUTES

SPECIFY IN UNITS OF 1 TO 60 MINUTES

SET OK CANCEL

FIG.39

RETRIEVE CONDITIONS SETTINGS (2)

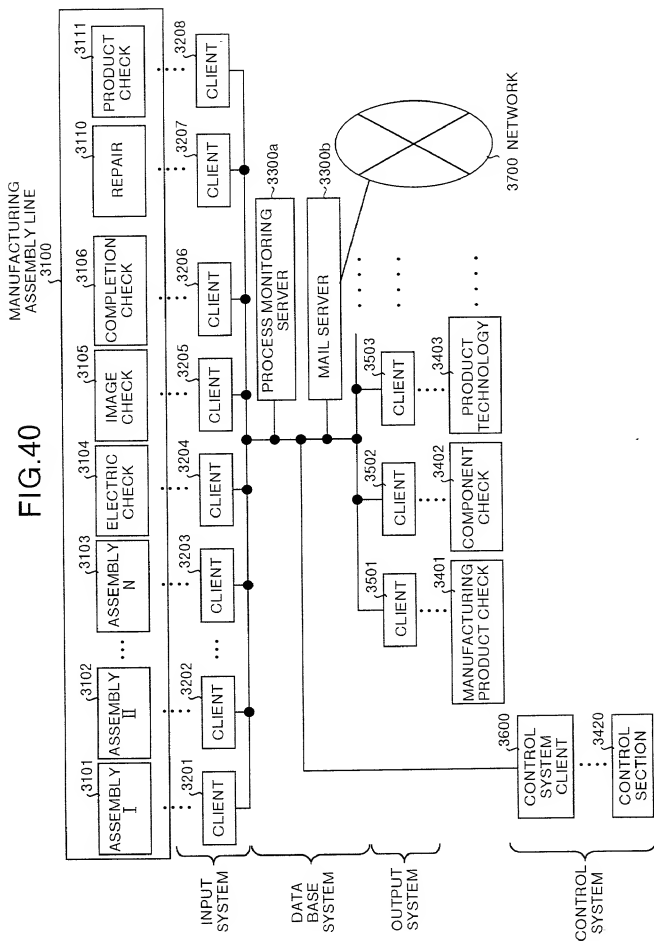
IN-PROCESSING QUALITY MONITORING SYSTEM [RECOCCURRENCE PREVENTION] PROGRESS CONTROL

☐ 画面  
☐ 印刷

RECOCCURRENCE PREVENTION INPUT	MONITOR	QUALITY INFORMATION	CHARACTERISTIC VALUE CONTROL	RECOCCURRENCE PREVENTION PROGRESS CONTROL	RETRIEVE OTHER INFORMATION	SYSTEM HELP	ADJUST DATE/TIME (EXIT)	END
EXISTENCE PERIOD OF MACHINE TYPE DATA 980210-980729		INPUT SEARCH CONDITIONS	9807	EXECUTE RETRIEVE	LOAD SPREAD SHEET	PRINT ONLY	PROCESSING	
PRODUCT FIELD SELECTION BOX PRN		ALL	NUMBER OF CASES (%)	RECOCCURRENCE PREVENTION INPUT	ELAPSED TIME/DAYS OF RECOCCURRENCE PREVENTION	RETRIEVAL TIME : 15 : 42 : 47		
MACHINE SELECTION BOX SANDIA		332	0	RECOCCURRENCE PREVENTION INPUT	1H 2H 3H 4H 5H 6H 7H	DAY DAYS DAYS DAYS DAYS DAYS DAYS		
MACHINE CODE SELECTION BOX GD20-00		332	100	RECOCCURRENCE PREVENTION INPUT	1H 2H 3H 4H 5H 6H 7H	DAY DAYS DAYS DAYS DAYS DAYS DAYS		
PRODUCTION STEP SELECTION BOX TRIAL DESIGN IMPROVE QUALITY TEST IMPROVE PROFICIENCY TRIAL PROFICIENCY MASS-TESTERS		332	100	RECOCCURRENCE PREVENTION INPUT	1H 2H 3H 4H 5H 6H 7H	DAY DAYS DAYS DAYS DAYS DAYS DAYS		
(RESPONSIBLE SECTOR) SELECTION O COMPONENT O ASSEMBLY O OTHER O TECHNOLOGY O DESIGN O ALL		332	100	RECOCCURRENCE PREVENTION INPUT	1H 2H 3H 4H 5H 6H 7H	DAY DAYS DAYS DAYS DAYS DAYS DAYS		
(RETRIEVE TYPES) O RECOCCURRENCE PREVENTION NONINPUT DATA O RECOCCURRENCE PREVENTION INPUT DATA O BOTH (ALL)		332	100	RECOCCURRENCE PREVENTION INPUT	1H 2H 3H 4H 5H 6H 7H	DAY DAYS DAYS DAYS DAYS DAYS DAYS		
(INFORMATION TYPE) O INFORMATION ONLY O NON-PROCESSING INFORMATION ONLY		332	100	RECOCCURRENCE PREVENTION INPUT	1H 2H 3H 4H 5H 6H 7H	DAY DAYS DAYS DAYS DAYS DAYS DAYS		



FIG. 40



## FIG.41

## BASIC OPERATIONS OF ASSEMBLY PROCESS

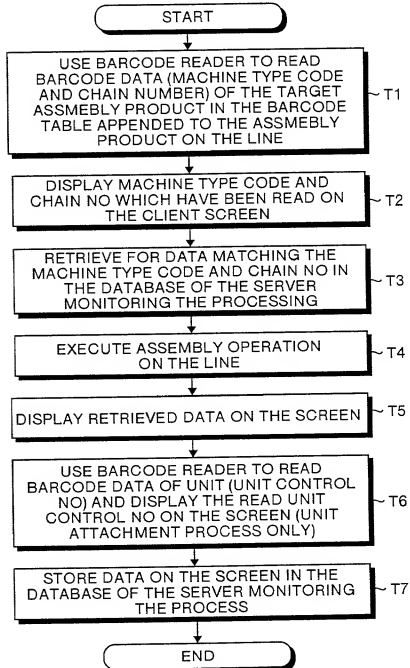
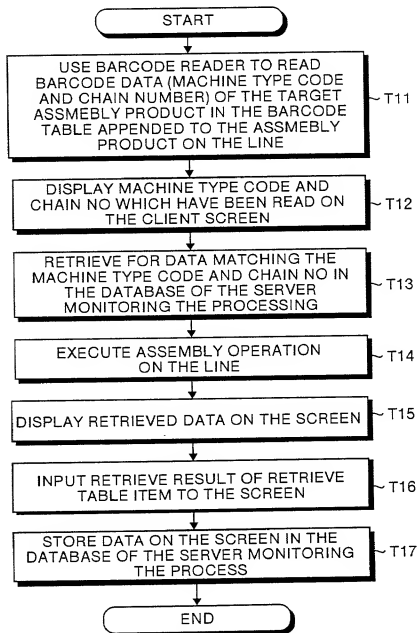


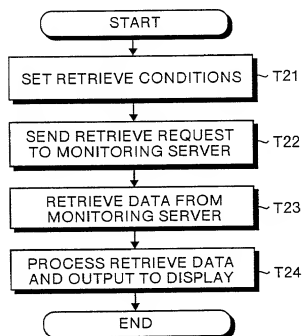
FIG.42

BASIC OPERATIONS OF CHECK PROCESS



## FIG.43

### BASIC OPERATIONS OF OUTPUT SYSTEM



## FIG.44

### BASIC OPERATIONS OF CONTROL SYSTEM

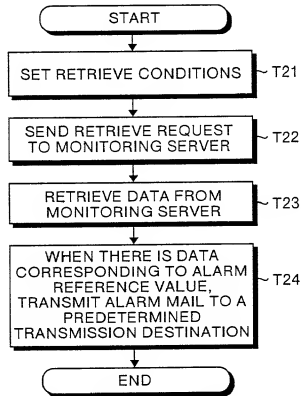


FIG.45

INPUT SYSTEM CLIENTS 3201 TO 3208, OUTPUT SYSTEM CLIENTS 3501 TO 3503

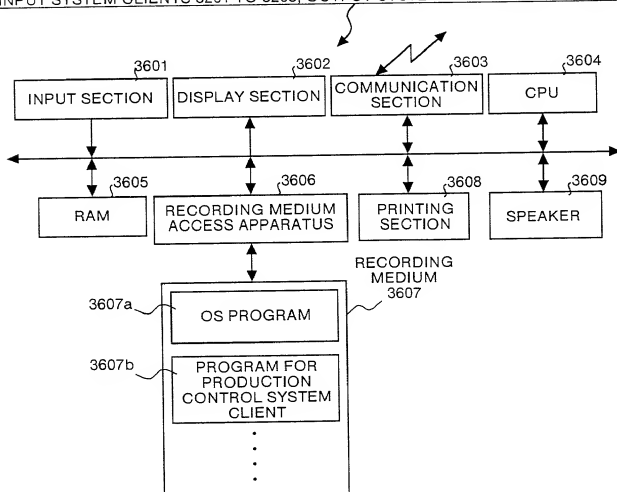
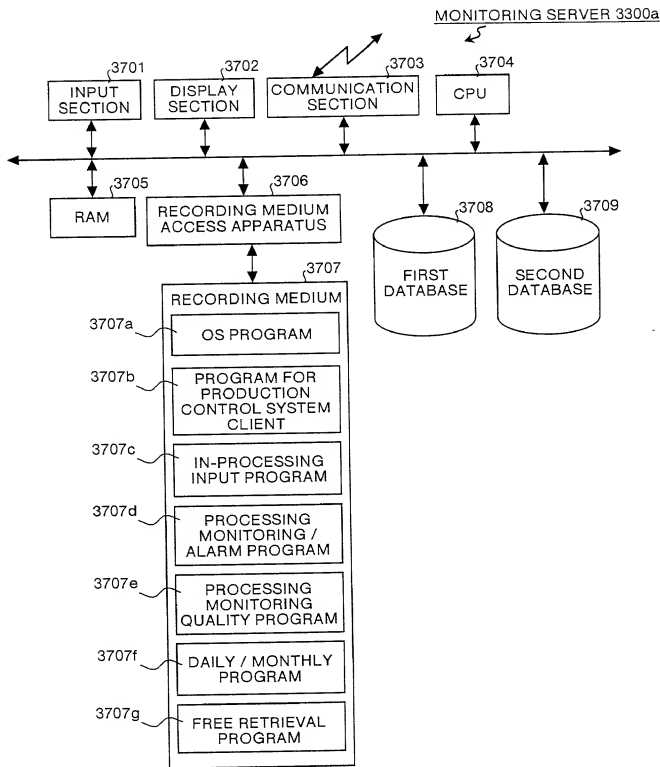


FIG.46



## 5

MASTER TABLES	
MACHINE TYPE CODE MASTER TABLE	3708a
FACTORY NAME MASTER TABLE	3708b
PRODUCT FIELD MASTER TABLE	3708c
PRODUCTION STEP MASTER TABLE	3708d
LINE NO MASTER TABLE	3708e
RANK MASTER TABLE	3708f
INPUT SUPERVISOR MASTER TABLE	3708g
RESPONSIBLE SECTOR MASTER TABLE	3708h
REPAIR CONTENTS MASTER TABLE	3708i
UNIT CHECK ITEM MASTER TABLE	3708j
REPAIR SUPERVISOR MASTER TABLE	3708k
IN-PROCESSING CHECK ITEM MASTER TABLE	3708l
COUNTERMEASURE SUPERVISOR MASTER TABLE	3708m
PROCESSING OPERATION SETTINGS MASTER TABLE	3708n
ALARM RECEIVER MASTER TABLE	3708o
CHECK TABLE ITEM MASTER TABLE	3708p
UNIT NAME MASTER TABLE	3708q
MACHINE NAME MASTER TABLE	3708r
ALARM CONTROL MASTER TABLE	3708s
ALARM VALUE MASTER TABLE	3708t
NATURE OF DEFECTS MASTER TABLE	3708u
UNIT CHECK TABLE ITEM MASTER TABLE	3708v



FIG.48

## SECOND DATABASE 3709

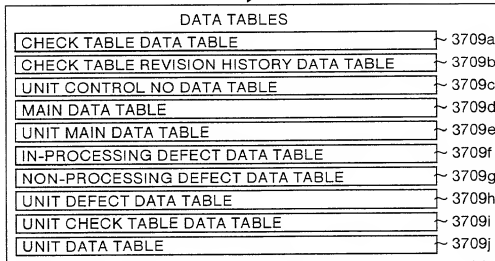
[illegible]

FIG.49

MACHINE TYPE CODE NAME MASTER TABLE 3708a

KEY	ITEMS	DATA			
		01	02	03	...
⊙	MACHINE TYPE CODE	A25700	A25715	A25717	...
	MACHINE TYPE NAME	3101	3B6	H11	...
	PRODUCT NAME	imagicCoLor 4000	SavinSDC 410	AficioColor 6010	...
	VOLTAGE DISPLAY	100V 50/60Hz	115V 50/60Hz	115V 50/60Hz	...
	MACHINE CODE	A	B	C	...

FIG.50

FACTORY NAME MASTER TABLE 3708b

KEY	ITEMS	DATA		
		01	02	...
⊙	FACTORY NAME	GOTENBA	ATSUGI	...
	ABBREVIATION	GTB	ATG	...

FIG.51

PRODUCT FIELD TYPE MASTER TABLE 3708c



KEY	ITEMS	DATA	
⊙	PRODUCT FIELD TYPE	PPC	...

FIG.52

PRODUCTION STEP MASTER TABLE 3708d



KEY	ITEMS	DATA		
	NO.	01	02	...
⊙	PRODUCTION STEP	MASS- PRODUCTION	MASS TEST	...

FIG.53

Line NO MASTER TABLE 3708e



KEY	ITEMS	DATA		
⊙	LINE NO.	A8031	A8511	...

## FIG.54

Rank MASTER TABLE 3708f



KEY	ITEMS	DATA		
◎	RANK	CHECK DEPENDENCE	INFORMATION TREATING	...

## FIG.55

INPUT SUPERVISOR MASTER TABLE 3708g



KEY	ITEMS	DATA			
◎	EMPLOYEE NO.	091	111111	123456	...
	NAME	SAKAI	YAMADA	SUGIYAMA	...
	PASSWORD	091	111111	123456	...

## FIG.56

RESPONSIBLE SECTOR MASTER TABLE 3708h

↓

KEY	ITEMS	DATA			
⊙	NO.	01	06	99	...
	RESPONSIBLE SECTOR 1	TECHNOLOGY	ASSEMBLY	OTHER	...
	RESPONSIBLE SECTOR 2	—	N-4:WRITE	—	...
	RESPONSIBLE SECTOR 3	—	—	—	...

## FIG.57

REPAIR CONTENTS MASTER TABLE 3708i

↓

KEY	ITEMS	DATA			
⊙	NO.	005	018	041	...
	REPAIR CONTENTS 1	OK	SET	SET	...
	REPAIR CONTENTS 2	REMEASUREMENT OK	COVER TEETH AFTER DF	POWER CODE DISCONNECTED CLAMP	...
	REPAIR CONTENTS 3	—	RH	No4	...

## FIG.58

UNIT CHECK ITEM MASTER TABLE 3708j



KEY	ITEMS	DATA			
◎	NO.	01	02	03	...
	SUPERVISOR NAME	USHIGOME	TSUCHIMOCCHI	KATO	...

## FIG.59

REPAIR SUPERVISOR MASTER TABLE 3708k



KEY	ITEMS	DATA			
	NO.	01	02	03	...
◎	SUPERVISOR NAME	USHIGOME	HASEGAWA	KATO	...

## FIG.60

IN-PROCESSING CHECK ITEM  
MASTER TABLE 3708l



KEY	ITEMS	DATA			
	NO.	01	02	03	...
◎	SUPERVISOR NAME	SHIRASAKA	TSUCHIMOCCHI	KATO	...

FIG.61

COUNTERMEASURE SUPERVISOR  
 MASTER TABLE 3708m



KEY	ITEMS	DATA		
	NO.	01	02	...
◎	SUPERVISOR NAME	USHIGOME	ASANO	...

FIG.62

PROCESSING OPERATION SETTINGS  
 MASTER TABLE 3708n



KEY	ITEMS	DATA			
◎	NO.	01	43	45	...
	PROCESSING NAME	MAIN ASSEMBLY 01	MACHINE CHECK 02	ELECTRICAL CHECK 01	...
	DISPLAY PROCESSING	MAIN ASSEMBLY 01	MACHINE CHECK 02	ELECTRICAL CHECK 01	...
	CHECKER	OTA	MATSUMOTO	IWATA	...
	TAB CONTROL	START	CHECK TABLE	CHECK TABLE+Unit	...

001050-2505960

ALARM RECEIVER MASTER TABLE 3708o

KEY	ITEMS	DATA			
	NO.	001	029	041	...
	RESPONSIBLE SECTOR 1	ASSEMBLY	ASSEMBLY	ASSEMBLY	...
	RESPONSIBLE SECTOR 2	A-4:AIO	P-5:3 SETS	T-4 FIXING	...
	RESPONSIBLE SECTOR 3	—	—	3G	...
	NOTES_ID	Misako Katsumata/R/RICOH	Tsutom Ushigome/R/RICOH	Eijiroh Katuski/RICOH	...
	TRANSMISSION CLASSIFICATION	TO	CC	CC	...

CHECK TABLE ITEM MASTER TABLE 3708p

KEY	ITEMS	DATA			
⊙	MACHINE TYPE CODE	A25000	A25000	A25000	...
⊙	NO.	02	03	04	...
⊙	PROCESSING NAME	MACHINE CHECK 02	MACHINE CHECK 02	MACHINE CHECK 02	...
	CHECK ITEM	DROPPED OBJECT	FIT SCREW	VERIFY WIRING	...
	STIPULATIONS	ELIMINATE	ELIMINATE PROTRUSION	NO INCORRECT WIRING	...
	INPUT TYPE	2	2	2	...



## FIG.65

UNIT NAME MASTER TABLE 3708q



KEY	ITEMS	DATA			
⊙	UNIT_NO	1	2	3	...
⊙	UNIT CODE	A	A	A	...
⊙	UNIT NAME	CONTROLLER	CONTROLLER	CONTROLLER	...
⊙	UNIT DIVISION	01	02	03	...
⊙	MACHINE TYPE CODE	A25000	A28000	A28100	...
	UNIT MACHINE TYPE CODE	A250.11	A250.11	A250.11	...
	UNIT CHECK TABLE	YES	NO	YES	...

FIG.66

MACHINE NAME MASTER TABLE 3708r

KEY	ITEMS	DATA		
⊙	MACHINE NAME	Iris/Lilac2	StingerC1	...
	PRODUCT FIELD	PPC	PPC	...
	PRODUCTION POINT	GTB	GTB	...
	DATE WHEN MASS PRODUCTION STARTED	2000.01.01	2000.01.01	...
	SERVER NAME	PRQ_GTB1	PRQ_GTB1	...
	IP_ADDRESS	133.139.104.147	133.139.104.147	...
	DB NAME	Q_Lilac2	Q_StingerC1	...
	HEAD_NO_FLG	*	—	...
	MAIL TRANSMISSION	*	—	...

FIG.67

ALARM CONTROL MASTER TABLE 3708s

KEY	ITEMS	DATA	
⊙	CONTROL DIVISION	A003	...
⊙	ORGANIZATION	A003G	...
	OBJECT VALUE	0	...
	ALARM VALUE	2	...

FIG. 68

### ALARM VALUE MASTER TABLE 3708t

KEY	ITEMS	DATA			
		02	03	04	...
⊙	NO.	02	03	04	...
⊙	CONTROL DIVISION	IMPORTANT	—	REOCCURRENCE	...
	DEFECTIVE SECTOR	SAFETY STIPULATIONS DEFECTIVE	—	—	...
	PROCESSING NAME	ELECTRICAL CHECK 01	—	—	...
	DEFECTIVE ITEM	SAFETY STIPULATIONS DEFECTIVE	DEFECTIVE CRIMPING	CIRCULAR S DEFECT	...
	NATURE OF DEFECT 1	HEAT LOSS	—	—	...
	NATURE OF DEFECT 2	IC2	—	—	...
	NATURE OF DEFECT 3	NONPERFORMING	—	—	...
	LINE OUT	—	RESECT	—	...
	CHANGES	—	*	—	...
	RANK	—	CHECK DEPENDENCE	—	...
	RESPONSIBLE SECTOR 1	TECHNOLOGY	PARTS	PARTS	...
	RESPONSIBLE SECTOR 2	—	—	—	...
	RESPONSIBLE SECTOR 3	—	—	—	...
	REOCCURRENCE	*	—	—	...
	CAUSE OF DEFECT	—	—	—	...
	REPAIR CONTENTS 1	EXCHANGE	—	—	...
	REPAIR CONTENTS 2	BICU	—	—	...
	REPAIR CONTENTS 3	SERIAL NO 001205	—	—	...
	REPAIR SUPERVISOR	TANAKA	—	—	...
	REPAIR PREVENTION CONTENTS	INTENSIFY PRODUCT CHECKS	—	—	...
	COUNTERMEASURE SUPERVISOR	YAMAGUCHI	—	—	...
	ALARM VALUE	1 *	1 *	1 *	...
	ALARM RESULT	000707 7	000707 7	000707 7	...
	TIME OF ALARM	10:15	12:30	09:28	...
	DATE OF MAIL TRANSMISSION	000707 10:15	000707 12:30	000707 09:28	...

## FIG.69

NATURE OF DEFECTS MASTER TABLE 3708u



KEY	ITEMS	DATA			
⊙	MACHINE TYPE NAME	StingerC1	StingerC1	StingerC1	...
⊙	PROCESS NAME	MACHINE CHECK 01	IMAGE CHECK 01	IMAGE CHECK 02	...
⊙	NO.	0043	0054	0055	...
⊙	DEFECTIVE ITEM	SC DEFECT	IMAGE DEFECT	IMAGE DEFECT	...
	NATURE OF DEFECT 1	SC2001	TONER DOWN	SPOT	...
	NATURE OF DEFECT 2	PRINTER ERROR	A3	WHITE SPOT	...
	NATURE OF DEFECT 3	—	200%	RIGHT 100%	...

## FIG.70

UNIT CHECK TABLE ITEM MASTER TABLE 3708v



KEY	ITEMS	DATA			
⊙	UNIT CODE	K	S	S	...
⊙	UNIT DIVISION	24	01	02	...
	NO.	01	01	01	...
	CLASSIFICATION	WRITE UNIT	SCANNER	SCANNER	...
	CHECK ITEM	VERIFY LENS AND MIRROR	VERIFY FRAME DRIVE AND ASSEMBLY	PAINT ACURIDE GREASE	...
	STIPULATIONS	NO SCRATCHES OR DIRT	1.NO PROTRUDING SCREWS OR MISSING PARTS	1.NO FORGOTTEN PAINTING OR PROTRUSIONS	...
	CHECK METHOD	VISUAL	MANUAL	VISUAL	...

# FIG.71

CHECK TABLE DATA TABLE 3709a



KEY	ITEMS	DATA			
⊙	ASSEMBLY SERIAL NO.	200004-00003	200004-00003	200004-00003	...
⊙	MACHINE TYPE Code	A25019	A25019	A25019	...
⊙	CHECK TABLE CONNECTION	1	1	1	...
⊙	NO.	01	02	03	...
⊙	PRODUCT STEP	MASS-PRODUCTION	MASS-PRODUCTION	MASS-PRODUCTION	...
	PROCESSING NAME	MACHINE CHECK 02	MACHINE CHECK 02	MACHINE CHECK 02	...
	CHECK ITEMS	MISSING PART	DROPPED OBJECT	FIT SCREW	...
	STIPULATIONS	ELIMINAT	ELIMINAT	ELIMINATE PROTRUSION	...
	DETERMINATION_ COMPLETION	MATCH	MATCH	MATCH	...
	REPRINTING	YAMAGUCHI	YAMAGUCHI	—	...
	INPUT TYPE	2	2	2	...

000000-000000

FIG.72

CHECK TABLE REVISION HISTORY DATA TABLE 3709b

KEY	ITEMS	DATA	
⊙	MACHINE TYPE Code	A25700	...
⊙	NO.	01	...
	ITEM	MACHINE CHECK	...
	CONTENT	MISSING PART	...
	CREATION DATE	20000416	...
	EDITING DATE	20000417	...
	CONFIRMATION	KOTO	...

FIG.73

UNIT CONTROL NO DATA TABLE 3709c

KEY	ITEMS	DATA			
⊙	ASSEMBLY SERIAL NO.	200001-00034	200001-00034	200001-00034	...
⊙	MACHINE TYPE Code	A25022	A25022	A25022	...
⊙	UNIT_NO	52	61	91	...
⊙	UNIT CODE	A	K	T	...
⊙	UNIT DIVISION	12	24	12	...
⊙	PRODUCT STEP	MASS-PRODUCTION	MASS-PRODUCTION	MASS-PRODUCTION	...
	UNIT NAME	CONTROLLER	WRITE UNIT	FIXING UNIT	...
	UNIT CONTROL NO	A25022000A	A25022000S	A250220001T00034	...

001060-25045360

62/123

# FIG.74

Main DATA TABLE 3709d



KEY	ITEMS	DATA			
	FACTORY NAME	GOTENBA	GOTENBA	GOTENBA	...
	PRODUCT FIELD	PPC	PPC	PPC	...
	MACHINE TYPE NAME	StringerC1	StringerC1	StringerC1	...
⊙	PRODUCTION STEP	MASS- PRODUCTION	MASS- PRODUCTION	MASS- PRODUCTION	...
	LINE NO.	A8031	A8031	A8031	...
⊙	MACHINE TYPE CODE	A29100	A29100	B00115	...
⊙	ASSEMBLY SERIAL NO.	200001-00099	200001-00829	200002-00041	...
	MACHINE NO.	3124-126011	3124-126931	H4300200102	...
	ASSEMBLY START DAY	20000417	20000420	20000324	...
	ASSEMBLY STARTING TIME	08:45	08:56	15:14	...
	COMPLETE DAY	20000417	20000424	20000324	...
	COMPLETE TIME	09:33	15:00	16:27	...
	LineOutFig	1	2	2	...
	PROCESS INPUT HOLD Fig	—	*	*	...
	MANUFACTURING INPUT HOLD Fig	*	—	—	...
	MANUFACTURING CHECK SampleFig	—	*	—	...
	MARKET GENERATION Fig	—	—	—	...
	DATE OF INPUT	20000417	20000420	20000324	...
	NO. OF DEFECTS	—	01	01	...
	NO. OF CHANGES	01	02	01	...
	NO. OF REOCCURRENCES	—	—	01	...
	NO. OF RECHECKS	01	02	03	...
	NO. OF INFORMATION TREATING	01	02	01	...
	SPECIAL SPECIFICATIONS	MEMO	SUFFIX A CHANGED TO B	CHANGED TO △△ REGULATION	...
	DATE AND TIME OF LATEST UPDATE	000417/9:33:50	000420/8:57:43	7	...

000417/9:33:50

KEY	ITEMS	DATA		
	FACTORY NAME	GOTENBA	GOTENBA	GOTENBA
	PRODUCT FIELD	PPC	PPC	PPC
	MACHINE TYPE NAME	StingerC1	StingerC1	StingerC1
◎	PRODUCTION STEP	MASS- PRODUCTION	MASS- PRODUCTION	MASS- PRODUCTION
	LINE NO.	A8031	A8031	A8031
◎	MACHINE TYPE Code	A29100	B00115	B00115
◎	ASSEMBLY SERIAL NO.	200001-00829	200002-00041	200002-00041
◎	DEFECT SERIAL NO.	01	01	02
	MACHINE NO.	H4300200111	H4300200102	H4300200102
	DEFECTIVE SECTOR	—	SAFETY STIPULATIONS DEFECTIVE	—
	NO. OF RECHECKS	—	01	—
	OCCURRENCE DATE	20000420	20000324	20000324
	OCCURRENCE TIME	08:57	15:14	16:15
	PROCESS NAME	MACHINE CHECK 02	IMAGE CHECK 02	IMAGE CHECK 01
	DEFECTIVE ITEM	DISPLAY DEFECT	SOUND DEFECT	IMAGE DEFECT
	NATURE OF DEFECT1	CANNOT DISPLAY A3	SOUND DURING NORMAL PASSAGE OF PAPER IS TOO LOUD	VERTICAL WHITE LINE
	NATURE OF DEFECT2	—	—	J
	NATURE OF DEFECT3	—	—	—
	LINE OUT	—	1	1
	CHANGES	—	*	*
	RANK	—	—	—
	RESPONSIBLE SECTOR 1	OTHER	PARTS	OTHER
	RESPONSIBLE SECTOR 2	—	—	—
	RESPONSIBLE SECTOR 3	—	—	—
	REOCCURRENCE	—	—	*
	CAUSE OF DEFECT	—	—	—
	REPAIR CONTENTS 1	REPLACE	REPLACE	REPLACE
	REPAIR CONTENTS 2	PRINT BOARD	HOUSING DRIVE	HOUSING DRIVE
	REPAIR CONTENTS 3	—	—	—
	REPAIR DATE	20000420	20000324	20000324
	REPAIR TIME	—	—	—
	REPAIR SUPERVISOR	KATO	MOCHIDA	SUGIMOTO
	REPAIR PREVENTION CONTENTS	REVISE SEQUENCE MANUAL	—	—
	DATE OF COUNTERMEASURE	20000705	—	—
	TIME OF COUNTERMEASURE	15:30	—	—
	COUNTERMEASURE SUPERVISOR	TANAKA	—	—
	DATE OF LATEST UPDATE	000420/8:57:44	000324/16:27:37	000324/16:27:37
	MAIL TRANSMISSION FLAG	1	—	—

MAIL TRANSMISSION[1]FLAG: TARGET OF TRANSMISSION  
MAIL TRANSMISSION[2]FLAG: TRANSMITTED

00000000000000000000



FIG.76

NON-PROCESSING DEFECT DATA TABLE 3709g

KEY	ITEMS	DATA	
	FACTORY NAME	GOTENBA	...
	PRODUCT FIELD	PPC	...
	MACHINE TYPE NAME	StingerC1	...
◎	PRODUCTION STEP	MASS-PRODUCTION	...
◎	CONTROL NO	—	...
◎	DEFECT SERIAL NO.	01	...
	NO. OF DEFECTS	—	...
	OCCURRENCE DATE	20000630	...
	OCCURRENCE TIME	01:30	...
	UNIT NAME	—	...
	DEFECTIVE ITEM	DISPLAY DEFECT	...
	NATURE OF DEFECT 1	CANNOT DISPLAY A3	...
	NATURE OF DEFECT 2	—	...
	NATURE OF DEFECT 3	—	...
	LINE OUT	—	...
	CHANGES	—	...
	RANK	—	...
	RESPONSIBLE SECTOR 1	OTHER	...
	RESPONSIBLE SECTOR 2	—	...
	REOCCURRENCE	—	...
	CAUSE OF DEFECT	—	...
	REPAIR CONTENTS 1	EXCHANGE	...
	REPAIR CONTENTS 2	PRINTER BOARD	...
	REPAIR DATE	20000703	...
	REPAIR TIME	—	...
	REPAIR SUPERVISOR	KATO	...
	REPAIR PREVENTION CONTENTS	REVISE SEQUENCE MANUAL	...
	DATE OF COUNTERMEASURE	20000710	...
	TIME OF COUNTERMEASURE	15:30	...
	COUNTERMEASURE SUPERVISOR	TANAKA	...
	DATE OF LATEST UPDATE	—	...

FIG.77

UNIT MAIN DATA TABLE 3709e

KEY	ITEMS	DATA			
	FACTORY NAME	GOTENBA	GOTENBA	GOTENBA	...
	PRODUCT FIELD	PPC	PPC	PPC	...
	MACHINE TYPE NAME	StingerC1	StingerC1	StingerC1	...
◎	PRODUCTION STEP	MASS-PRODUCTION	MASS-PRODUCTION	MASS-PRODUCTION	...
◎	UNIT CODE	T	T	T	...
◎	UNIT DIVISION	01	01	01	...
◎	UNIT CONTROL NO.	A250000001T00001	A250000001T00002	A250000001T00003	...
◎	UNIT NAME	FIXING UNIT	FIXING UNIT	FIXING UNIT	...
	ASSEMBLY START DAY	20000124	20000124	20000124	...
	ASSEMBLY STARTING TIME	11:06	11:07	11:08	...
	COMPLETE DAY	20000124	20000124	20000124	...
	COMPLETE TIME	11:06	11:07	11:08	...
	DATE OF INPUT	20000124	20000124	20000124	...
	NO. OF DEFECTS	01	02	03	...
	NO. OF CHANGES	01	02	03	...
	NO. OF REOCCURRENCE	01	02	03	...
	NO. OF RECHECKS	01	02	03	...
	DATE OF LATEST UPDATE	000124/11:06:03	000124/11:07:38	000124/11:08:37	...

# FIG.78

UNIT CHECK TABLE DATA TABLE 37091

KEY	ITEMS	DATA			
⊙	UNIT CONTROL NO.	A250000001T00001	A250000001T00001	A250000001T00001	...
⊙	UNIT CODE	T	T	T	...
⊙	UNIT DIVISION	01	01	01	...
⊙	PRODUCTION STEP	MASS- PRODUCTION	MASS- PRODUCTION	MASS- PRODUCTION	...
⊙	NO.	01	02	03	...
	CLASSIFICATION	FIXING UNIT	FIXING UNIT	FIXING UNIT	...
	CHECK ITEM	VERIFY DIVERGENCE OF FIXING ROLLER MACHINE TYPE	VERIFY DIVERGENCE OF INFRARED HEATER MACHINE TYPE	VERIFY DIVERGENCE OF DEFUNCT ROLLER MACHINE TYPE	...
	STIPULATIONS	INSCRIPTION ON FIXING ROLLERS	RED INSCRIPTION (DOMESTIC 120V) BLACK INSCRIPTION (230V)	DIAMETER OF ROLLERS IS NARROWER AT TWO POINTS ON THE INNER SIDE	...
	CHECK METHOD	VISUAL	VISUAL	VISUAL	...
	RESULT	1	1	1	...
	RECHECK STAMP	TANAKA	WATANABE	YAMAGUCHI	...

00100-2545400

# FIG.79

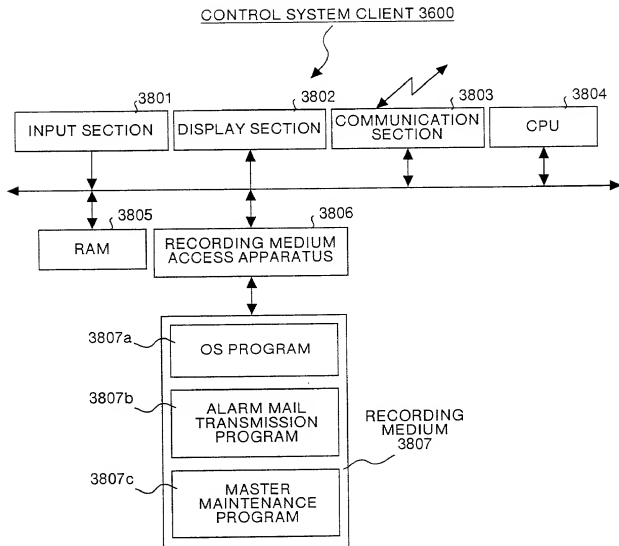
UNIT DATA TABLE 3709



KEY	ITEMS	DATA			
◎	UNIT CONTROL NO.	A250000001T00001	A250000001T00001	A250000001T00001	...
◎	UNIT CODE	T	T	T	...
◎	UNIT DIVISION	01	01	01	...
◎	PRODUCTION STEP	MASS- PRODUCTION	MASS- PRODUCTION	MASS- PRODUCTION	...
	UNIT NAME	FIXING UNIT	FIXING UNIT	FIXING UNIT	...
	CHECK DATE	20000124	20000124	20000124	...
	CHECK TIME	11:06	11:07	11:08	...
	RECHECK STAMP	TANAKA	TANAKA	WATANABE	...
	PASS STAMP	KASAI	KASAI	KASAI	...

20250303 15:44:43

FIG.80



INPUT SYSTEM CLIENT

FIG. 81

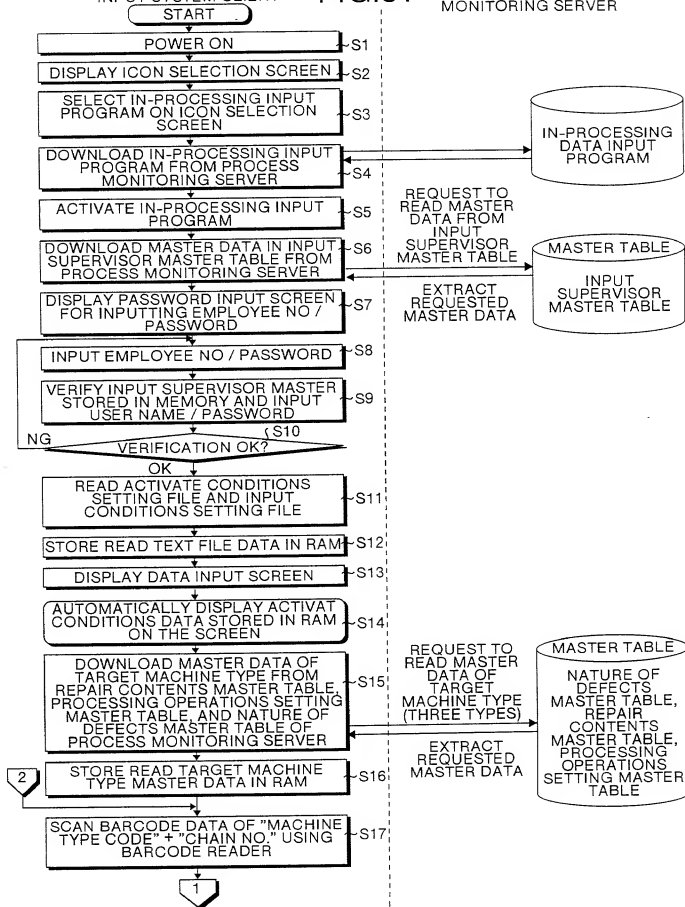
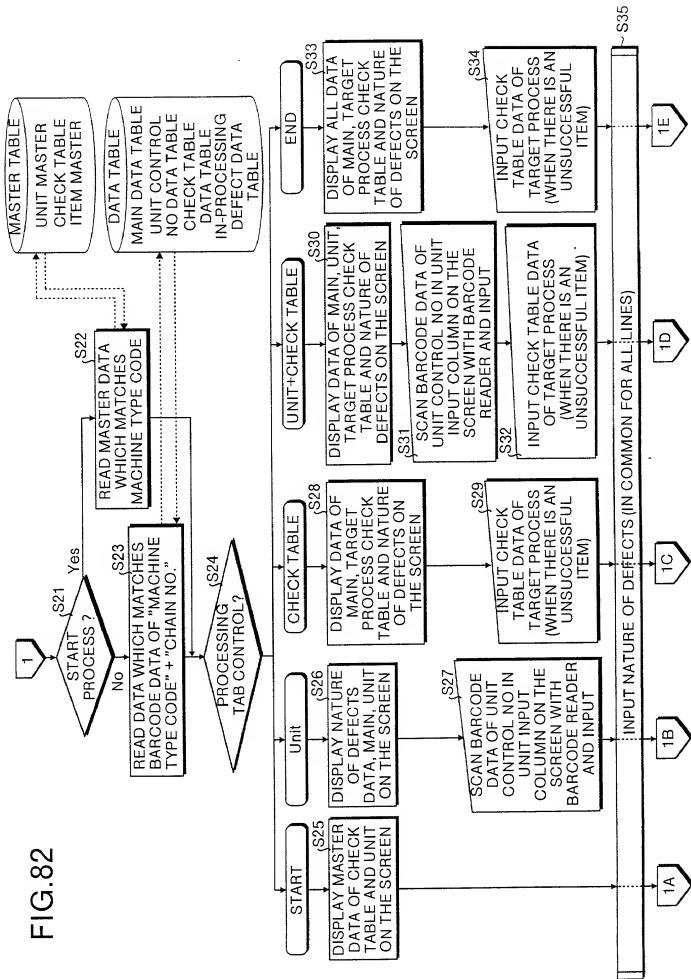
PROCESS  
MONITORING SERVER

FIG.82



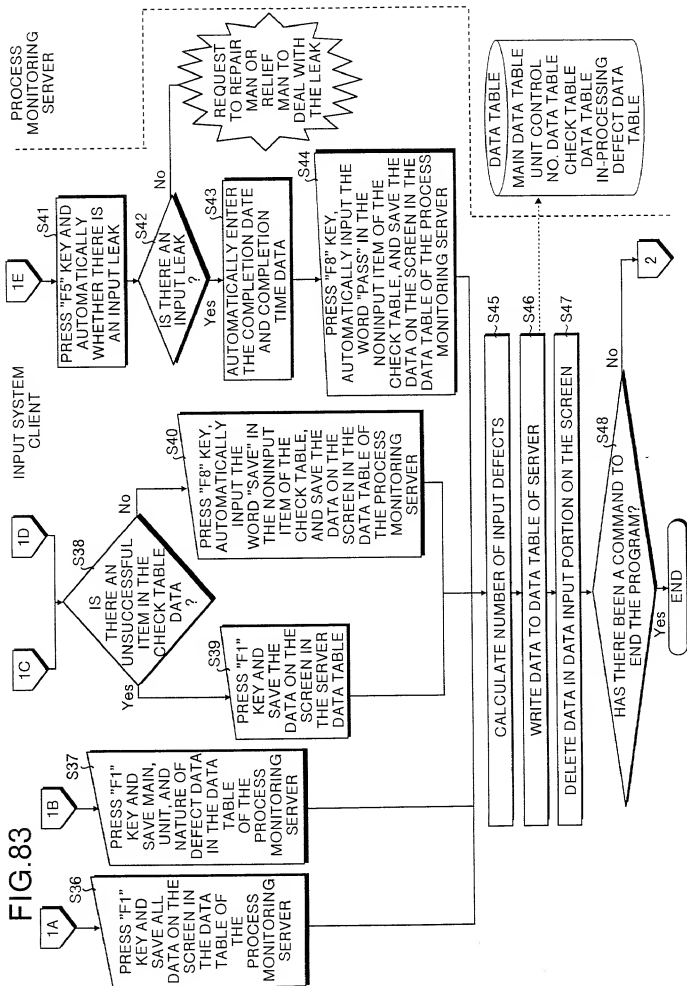




FIG.84

INPUT SYSTEM CLIENT

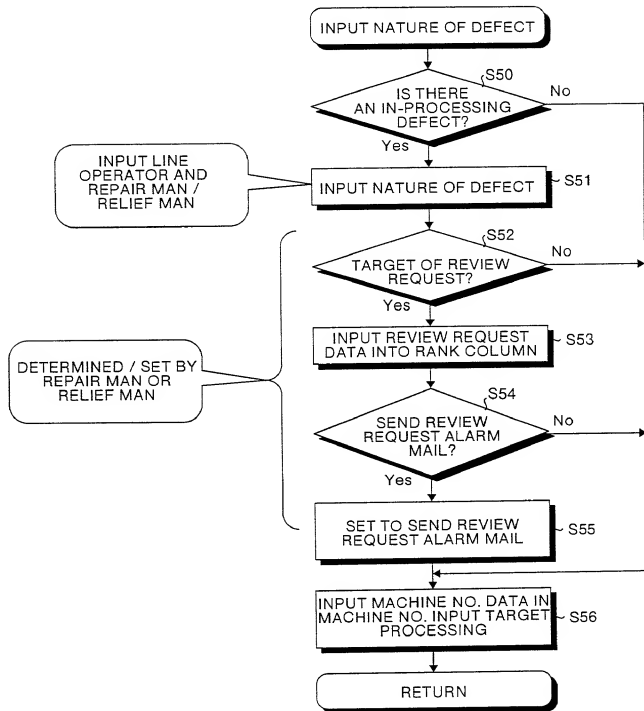
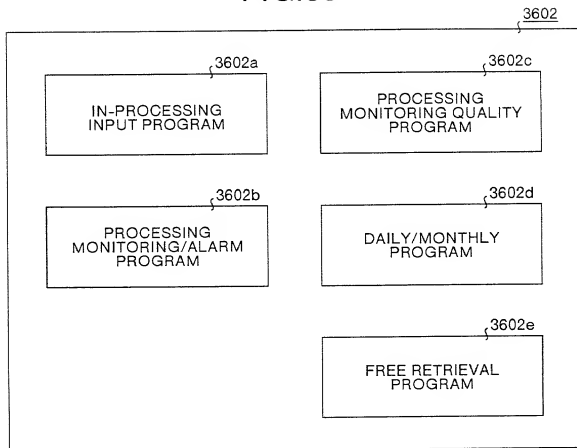
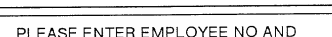


FIG.85



PLEASE ENTER EMPLOYEE NO AND  
PASSWORD, THEN PRESS "ENTER"



C:\>

PLEASE ENTER EMPLOYEE NO AND  
PASSWORD, THEN PRESS "ENTER"

EMPLOYEE NO

PASSWORD

OK

CANCEL

FIG. 87

IN-PROCESSING INPUT				FILE(F) TOOL(T) HELP(H)		LINE NO.		MACHINE NO.	
FACTORY	PRODUCTION STEP	MASS. PRODUCTION	LINE NO.	MACHINE NAME	PROCESS NAME	OPERATOR	MACHINE CODE	ASSEMBLY SERIAL NO.	MACHINE NO.
ATSUGI					ALL	SPECIAL			
4001				ASSEMBLY TIME		COMPLETION DATE		COMPLETION TIME	
SAVE PERIOD (TEN YEARS)				000601		11:53			
A25700				A25715		A25717		A25722	
A25723				A25726		A25729		A25732	
A25735				A25738		A25741		A25744	
A25747				A25750		A25753		A25756	
A25759				A25762		A25765		A25768	
A25771				A25774		A25777		A25780	
A25783				A25786		A25789		A25792	
A25795				A25798		A25801		A25804	
A25807				A25810		A25813		A25816	
A25819				A25822		A25825		A25828	
A25831				A25834		A25837		A25840	
A25843				A25846		A25849		A25852	
A25855				A25858		A25861		A25864	
A25867				A25870		A25873		A25876	
A25879				A25882		A25885		A25888	
A25891				A25894		A25897		A25900	
A25903				A25906		A25909		A25912	
A25915				A25918		A25921		A25924	
A25927				A25930		A25933		A25936	
A25939				A25942		A25945		A25948	
A25951				A25954		A25957		A25960	
A25963				A25966		A25969		A25972	
A25975				A25978		A25981		A25984	
A25987				A25990		A25993		A25996	
A25999				A26002		A26005		A26008	
A26011				A26014		A26017		A26020	
A26023				A26026		A26029		A26032	
A26035				A26038		A26041		A26044	
A26047				A26050		A26053		A26056	
A26059				A26062		A26065		A26068	
A26071				A26074		A26077		A26080	
A26083				A26086		A26089		A26092	
A26095				A26098		A26101		A26104	
A26107				A26110		A26113		A26116	
A26119				A26122		A26125		A26128	
A26131				A26134		A26137		A26140	
A26143				A26146		A26149		A26152	
A26155				A26158		A26161		A26164	
A26167				A26170		A26173		A26176	
A26179				A26182		A26185		A26188	
A26191				A26194		A26197		A26200	
A26203				A26206		A26209		A26212	
A26215				A26218		A26221		A26224	
A26227				A26230		A26233		A26236	
A26239				A26242		A26245		A26248	
A26251				A26254		A26257		A26260	
A26263				A26266		A26269		A26272	
A26275				A26278		A26281		A26284	
A26287				A26290		A26293		A26296	
A26299				A26302		A26305		A26308	
A26311				A26314		A26317		A26320	
A26323				A26326		A26329		A26332	
A26335				A26338		A26341		A26344	
A26347				A26350		A26353		A26356	
A26359				A26362		A26365		A26368	
A26371				A26374</					

FIG. 8.8

IN-PROCESSING INPUT

FILE(F) TOOL(T) HELP(H)

FACTORY SET INPUT CONDITIONS NO.

SET DATE AND TIME

SET IN-PROCESS ITEMS

SET PRODUCTION OPERATION

SAVE CHECK TABLE HISTORY (THE CHANGE PASSWORD)

SET ACTIVATION

MACHINE NAME

ASSEMBLY NO.

COMPLETION DATE

COMPLETION TIME

PROCESS NAME

SPECIAL

OPERATOR

MACHINE CODE

ASSEMBLY SERIAL NO.

MACHINE NO.

4001

SAVE

11:53

4015

1021

1022

1023

1024

1025

1026

1027

1028

1029

1030

1031

1032

1033

1034

1035

1036

1037

1038

1039

1040

1041

1042

1043

1044

1045

1046

1047

1048

1049

1050

1051

1052

1053

1054

1055

1056

1057

1058

1059

1060

1061

1062

1063

1064

1065

1066

1067

1068

1069

1070

1071

1072

1073

1074

1075

1076

1077

1078

1079

1080

1081

1082

1083

1084

1085

1086

1087

1088

1089

1090

1091

1092

1093

1094

1095

1096

1097

1098

1099

1100

1101

1102

1103

1104

1105

1106

1107

1108

1109

1110

1111

1112

1113

1114

1115

1116

1117

1118

1119

1120

1121

1122

1123

1124

1125

1126

1127

1128

1129

1130

1131

1132

1133

1134

1135

1136

1137

1138

1139

1140

1141

1142

1143

1144

1145

1146

1147

1148

1149

1150

1151

1152

1153

1154

1155

1156

1157

1158

1159

1160

1161

1162

1163

1164

1165

1166

1167

1168

1169

1170

1171

1172

1173

1174

1175

1176

1177

1178

1179

1180

1181

1182

1183

1184

1185

1186

1187

1188

1189

1190

1191

1192

1193

1194

1195

1196

1197

1198

1199

1200

1201

1202

1203

1204

1205

1206

1207

1208

1209

1210

1211

1212

1213

1214

1215

1216

1217

1218

1219

1220

1221

1222

1223

1224

1225

1226

1227

1228

1229

1230

1231

1232

1233

1234

1235

1236

1237

1238

1239

1240

1241

1242

1243

1244

1245

1246

1247

1248

1249

1250

1251

1252

1253

1254

1255

1256

1257

1258

1259

1260

1261

1262

1263

1264

1265

1266

1267

1268

1269

1270

1271

1272

1273

1274

1275

1276

1277

1278

1279

1280

1281

1282

1283

1284

1285

1286

1287

1288

1289

1290

1291

1292

1293

1294

1295

1296

1297

1298

1299

1300

1301

1302

1303

1304

1305

1306

1307

1308

1309

1310

1311

1312

1313

1314

1315

1316

1317

1318

1319

1320

1321

1322

1323

1324

1325

1326

1327

1328

1329

1330

1331

1332

1333

1334

1335

1336

1337

1338

1339

1340

1341

1342

1343

1344

1345

1346

1347

1348

1349

1350

1351

1352

1353

1354

1355

1356

1357

1358

1359

1360

1361

1362

1363

1364

1365

1366

1367

1368

1369

1370

1371

1372

1373

1374

1375

1376

1377

1378

1379

1380

1381

1382

1383

1384

1385

1386

1387

1388

1389

1390

1391

1392

1393

1394

1395

1396

1397

1398

1399

1400



FIG.90

SYSTEM ACTIVATION CONDITIONS SETTING DIALOGUE LINE NO. ☒

FACTORY :  ▼

PRODUCTION STEP :  ▼

LINE NO :  ▼

MACHINE NAME :  ▼

PROCESSING NAME :  ▼

SETTING CONTENTS ARE STORED IN  
TEXT FILE [C:\PRQ IN KIDOU.ini]

4042

FIG.91

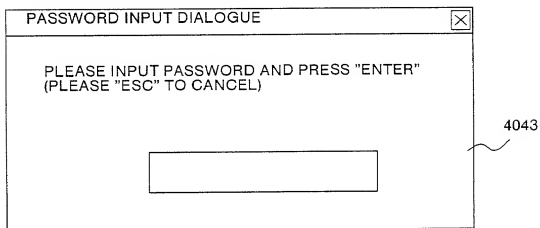







FIG.92


4044

PROCESSING OPERATION SETTING (CHANGE)					
NO	PROCESS NAME	DISPLAY PROCESSING	CHECK	TAB CONTROL	
43	MACHINE CHECK 01	MACHINE CHECK 01	SUGIYAMA	CHECK TABLE	
44	MACHINE CHECK 02	MACHINE CHECK 02	ONO	CHECK TABLE	
45	MACHINE CHECK 03	MACHINE CHECK 03		CHECK TABLE	
46	ELECTRICAL CHECK01	ELECTRICAL CHECK01	IWATA	CHECK TABLE+UNIT	
47	ELECTRICAL CHECK02	ELECTRICAL CHECK02	TSUCHIMOTOHI	CHECK TABLE+UNIT	
48	ELECTRICAL CHECK03	ELECTRICAL CHECK03	KOBAYASHI	CHECK TABLE+UNIT	
	ELECTRICAL CHECK04	ELECTRICAL CHECK04		CHECK TABLE+UNIT	

  
 SAVE

  
 INSERT  
LINE

  
 ADD  
LINE

  
 DELETE  
LINE

CLOSE

4045

FIG.93

PROCESSING OPERATION SETTING (CHANGE)

NO	PROCESS NAME	DISPLAY PROCESSING	CHECK	TAB CONTROL
43	MACHINE CHECK 01	MACHINE CHECK 01	SUGIYAMA	CHECK TABLE
44	MACHINE CHECK 02	MACHINE CHECK 02	ONO	CHECK TABLE
45	MACHINE CHECK 03	MACHINE CHECK 03		CHECK TABLE
46	ELECTRICAL CHECK01	ELECTRICAL CHECK01	IWATA	CHECK TABLE+UNIT
47	ELECTRICAL CHECK02	ELECTRICAL CHECK02	TSUCHIMOCHI	CHECK TABLE+UNIT
48	ELECTRICAL CHECK04	ELECTRICAL CHECK04	KOBAYASHI	CHECK TABLE+UNIT

SAVE

INSERT LINE

ADD LINE

DELETE LINE

CLOSE

4044

NO	PROCESS NAME	DISPLAY PROCESSING	STIPULATION	RESULT/MARK OF COMPLETION	RECHECK STAMP
01	MACHINE CHECK02	DEFECTIVE PRODUCT	SHOULD BE NONE	PASS	
02		DROPPED PARTS	SHOULD BE NONE	PASS	
03		SCREW ATTACHMENT	SHOULD NOT PROTRUDE	PASS	
04		WIRING CONFIRMATION	SHOULD BE NO WRONG WIRING	PASS	
05		CN SET STATUS	SHOULD BE NO PROTRUSIONS OR UN-SET CN	PASS	
06		EXTERNAL APPEARANCE (SCRATCHES, DIRT)	SHOULD BE NONE	FAIL	
07		EXTERNAL APPEARANCE (ODD COLORING, WRONG COLORS)	SHOULD BE NONE	PASS	
08				ONO	

4050

FIG.94

PROCESSING OPERATION SETTING (CHANGE)

4044

NO	PROCESS NAME	DISPLAY PROCESSING	CHECK	TAB CONTROL
43	MACHINE CHECK 01	MACHINE CHECK 01	SUGIYAMA	CHECK TABLE
44	MACHINE CHECK 02	MACHINE CHECK 02	ONO	CHECK TABLE
45	MACHINE CHECK 03	MACHINE CHECK 03		CHECK TABLE
46	ELECTRICAL CHECK01	ELECTRICAL CHECK01	IWATA	CHECK TABLE+UNIT
47	ELECTRICAL CHECK02	ELECTRICAL CHECK02	TSUCHIMOCCHI	CHECK TABLE+UNIT
48	ELECTRICAL CHECK04	ELECTRICAL CHECK04	KOBAYASHI	CHECK TABLE+UNIT

SAVE

INSERT LINE

ADD LINE

DELETE LINE

CLOSE

4050

NO	PROCESS NAME	DISPLAY PROCESSING	STIPULATION	RESULT/MARK OF COMPLETION	RECHECK STAMP
01	ELECTRICAL CHECK02	DETECT TONER END	SHOULD FLASH	PASS	
02		REGULATION AIO SET	DO NOT DISPLAY "PLEASE SET"	PASS	
03		1-PIN LED LAMP	2 LAMPS TOGETHER	PASS	
04		LEAKED CURRENT	LESS THAN 1.0 mA	PASS	
05	ELECTRICAL CHECK03	LOOP BACK 1-PIN	SHOULD BE OK	TSUCHIMOCCHI	
06		LOOP BACK 1-PIN	SHOULD BE OK	PASS	
07		LOOP BACK 1-PIN	SHOULD BE OK	PASS	
08		LOOP BACK PUNCTURE	SHOULD BE OK	PASS	
09				KOBAYASHI	

83/123

FIG.95

CHECK TABLE HISTORY DIALOGUE BOX

4045

MACHINE CODE:

SAVE AND END

CLOSE

NO	ITEM	CONTENTS	CREATION DATE	EDITOR	APPROVAL
01					
02		STOPPED MACHINE CHECK PROCESS	00.07.27	ASAHARA	AIDA
03	CREATED				
04					
05	REVISED → CHANGED XXXX		00.08.01	YAMAGUCHI	UMEDA
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					

FIG.96

IN-PROCESSING INPUT FILE(F) TOOL(T) HELP(H)									
FACTORY	PRODUCTION STEP	LINE NO	MACHINE NAME	PROCESS NAME	OPERATOR	MACHINE CODE	ASSEMBLY SERIAL NO.	MACHINE NO.	
ATSUGI	MASS-PRODUCTION	A6041	SMALL QUANTITY DEVICE	ALL	SPECIAL	A19302	0001-00000		
4001 SAVE PERIOD (TEN YEARS)		ASSEMBLY DATE	ASSEMBLY TIME	COMPLETION DATE	COMPLETION TIME				
		000601	11:53						
NO	PROCESSING NAME	CHECK ITEM	STIPULATION	RESULT/MARK OF COMPLETION	MARK OF RECHECK				
01	ELECTRICAL CHECK			SPECIAL					
02	IMAGE CHECK			SPECIAL					
03	COMPLETION CHECK			SPECIAL					
04		LETTER NEAR KEY	JAPANESE	PASS					
05		FISURE AT TOP LEFT	NONE	PASS					
06		SWITCH KEY ON START KEY	NONE	PASS					
07		DECAL ID OPTICAL FIBER	WHITE AND BLACK	PASS					
08		DECAL ID OPTICAL FIBER	WHITE	PASS					
09		POWER CORD WIRE	NONE	PASS					
10		POWER CORD CORE	NONE	PASS					
11		DC POWER	A193-5720	PASS					
12		BIGU	A193-5090	PASS					
13		GROUND BOARD BRT	NONE	PASS					
14		RATING BOARD	NONE	PASS					
15		TONER AUXILIARY UNIT	PASTING AFTER COVER	PASS					
16		VOLTAGE WARNING DECAL	YES	PASS					
17		VCC 100CAL	YES	PASS					
18		INSULATING RESISTANCE	DC500V10MΩ OR MORE	PASS					
19		INSULATING PRESSURE-RESILIENCE 1	20mA1.25KV2sec	PASS					
20		LEAKED CURRENT	IAC-H10.5mA OR LESS	PASS					
21		LEAKED CURRENT	IAC-H10.5mA OR LESS	PASS					
22		INSULATING PRESSURE-RESILIENCE 2	IAC-H10.5mA OR LESS	PASS					
23		INSULATING PRESSURE-RESILIENCE 2	IAC-H10.5mA OR LESS	PASS					
24		GROUND CHARACTERISTIC	UNDER 0.1Ω	PASS					
25		MEASURED ITEM		PASS					
26		PRODUCT CHECK		SPECIAL					
27		CHECK PASS DATE	CHECK TABLE PASS/FAIL	SPECIAL	06/06/11448				
1	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...
3	...	...	...	...	...	...	...	...	...
4	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...
13	...	...	...	...	...	...	...	...	...
14	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...	...
18	...	...	...	...	...	...	...	...	...
19	...	...	...	...	...	...	...	...	...
20	...	...	...	...	...	...	...	...	...
21	...	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...	...
23	...	...	...	...	...	...	...	...	...
24	...	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...	...
26	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...	...

4001

4002

4003

4004

4005

4006

4007

4008

4009

4010

4011

4012

4013

4014

4015

4016

4020

4050

4053

4031

4032

4033

4034

4035

4036

4037

4038

4039

4040

4041

4042

4043

4044

4045

4046

4047

4048

4049

4050

4051

4052

4053

4054

4055

4056

4057

4058

4059

4060

4061

4062

4063

4064

4065

4066

4067

4068

4069

4070

4071

4072

4073

4074

4075

4076

4077

4078

4079

4080

4081

4082

4083

4084

4085

4086

4087

4088

4089

4090

4091

4092

4093

4094

4095

4096

4097

4098

4099

4100

4101

4102

4103

4104

4105

4106

4107

4108

4109

4110

4111

4112

4113

4114

4115

4116

4117

4118

4119

4120

4121

4122

4123

4124

4125

4126

4127

4128

4129

4130

4131

4132

4133

4134

4135

4136

4137

4138

4139

4140

4141

4142

4143

4144

4145

4146

4147

4148

4149

4150

4151

4152

4153

4154

4155

4156

4157

4158

4159

4160

4161

4162

4163

4164

4165

4166

4167

4168

4169

4170

4171

4172

4173

4174

4175

4176

4177

4178

4179

4180

4181

4182

4183

4184

4185

4186

4187

4188

4189

4190

4191

4192

4193

4194

4195

4196

4197

4198

4199

4200

4201

4202

4203

4204

4205

4206

4207

4208

4209

4210

4211

4212

4213

4214

4215

4216

4217

4218

4219

4220

4221

4222

4223

4224

4225

4226

4227

4228

4229

4230

4231

4232

4233

4234

4235

4236

4237

4238

4239

4240

4241

4242

4243

4244

4245

4246

4247

4248

4249

4250

4251

4252

4253

4254

4255

4256

4257

4258

4259

4260

4261

4262

4263

4264

4265

4266

4267

4268

4269

4270

4271

4272

4273

4274

4275

4276

4277

4278

4279

4280

4281

4282

4283

4284

4285

4286

4287

4288

4289

4290

4291

4292

4293

4294

4295

4296

4297

4298

4299

4300

4301

4302

4303

4304

4305

4306

4307

4308

4309

4310

4311

4312

4313

4314

4315

4316

4317

4318

4319

4320

4321

4322

4323

4324

4325

4326

4327

4328

4329

4330

4331

4332

4333

4334

4335

4336

4337

4338

4339

4340

4341

4342

4343

4344

4345

4346

4347

4348

4349

4350

4351

4352

4353

4354

4355

4356

4357

4358

4359

4360

4361

4362

4363

4364

4365

4366

4367

4368

4369

4370

4371

4372

4373

4374

4375

4376

4377

4378

4379

4380

4381

4382

4383

4384

4385

4386

4387

4388

4389

4390

4391

4392

4393

4394

4395

4396

4397

4398

4399

4400

4401

4402

4403

4404

4405

4406

4407

4408

4409

4410

4411

4412

4413

4414

4415

4416

4417

4418

4419

4420

4421

4422

4423

4424

4425

4426

4427

4428

4429

4430

4431

4432

4433

4434

4435

4436

4437

4438

4439

4440

4441

4442

4443

4444

4445

4446

4447

4448

4449

4450

4451

4452

4453

4454

4455

4456

4457

4458

4459

4460

4461

4462

4463

4464

4465

4466

4467

4468

4469

4470

4471

4472

4473

4474

4475

4476

4477

4478

4479

4480

4481

4482

4483

4484

4485

4486

4487

4488

4489

4490

4491

4492

4493

4494

4495

4496

4497

4498

4499

4500

4501

4502

4503

4504

4505

4506

4507

4052

FIG.97

UNIT CHECK TABLE AND NATURE OF UNIT DEFECTS						
UNIT CHECK TABLE		NATURE OF UNIT DEFECTS				
A19302	0001-00000	WRITE UNIT	24000100000	CLOSE		
CHECK DATE	000606					
CHECK TIME	17 : 49					
NO	CLASSIFICATION	CHECK ITEMS	STIPULATIONS	RETRIEVE METHOD	RESULT	RECHECK
01	WRITE UNIT	CONFIRM LENS MIRROR	NO SCRATCHES / DIRT / RUBBISH		PASS	
02		CONFIRM LENS MIRROR PRESS	NO PROTRUSIONS, WARPING, MISSING PART, INCORRECT SPECIFICATIONS		PASS	
03		CONFIRM POLYCON AND LD SUBSTRATE CONNECTOR SET ABILITY	NO PROTRUDING OR UNSET CONNECTORS		PASS	
04		CONFIRM CHARACTERISTIC VALUE OF CHARACTERISTIC VALUE CHECKER	SHOULD BE WITHIN CHARACTERISTIC VALUE STIPULATIONS		PASS	
05		CONFIRM EXTERNAL APPEARANCE OF UNIT	NO PROTRUSIONS OR MISSING PARTS		PASS	

FIG 98

IN-PROCESSING INPUT  
FILE(E) TOOL(T) HELP(H)

FACTORY PRODUCT ION	LINE NO	MACHINE NAME	PROCESS NAME	OPERATOR SPECIAL	MACHINE CODE	ASSEMBLY SERIAL NO.	MACHINE NO.
AT5UGI	MASS- STEP	A6041	SMALL-QUANTITY DEVICE	ALL	A19302	0001-00000	

4001  
SAVE PERIOD  
(TEN YEARS)

ASSEMBLY DATE	ASSEMBLY TIME	COMPLETION DATE	COMPLETION TIME
000601	15:49		

4004 4005 4012 4006 4013 4007 4008 4009

4016

4051

UNIT NAME	CONTROL NO
OPERATION SECTION	24.0001000000
WRITE UNIT	
SCANNER	
REGULATION AIO	
REGULATION AIO C	
FIXATION UNIT	
SCANNER CGD	
DF	

4053

4020

SAVE F1	MACHINE NO T4	COMPLETE F3	LOCK F7	AUTO SAVE F8	LINE REJECT F9	LINE DELETE F10	ASSEMBLY SERIAL NO F11	PRINT F12
---------	------------------	----------------	---------	-----------------	----------------------	-----------------------	---------------------------	-----------

001060-25015360

FIG.99

IN-PROCESSING INPUT FILE(F) TOOL(T) HELP(H)				4010		4004		4011		4005		4012		4006		4013		4007		4000		4008		4009	
FACTORY	PRODUCTION STEP	LINE NO.	MACHINE NAME	SMALL QUANTITY DEVICE	PROCESS NAME	OPERATOR	COMPLETION DATE	COMPLETION TIME	MACHINE CODE	ASSEMBLY SERIAL NO.	MACHINE NO.														
ATSUMI MASS-PRODUCTION				A6041	ALL	SPECIAL			A19302	0001-00000															
4001 SAVE PERIOD (TEN YEARS)				ASSEMBLY DATE	ASSEMBLY TIME			COMPLETION TIME																	
				000801	11:53																				
PROCESSING NAME				CHECK ITEM				STIPULATION				RESULT/MARK OF COMPLETION				MARK OF RECHECK									
01 ELECTRICAL CHECK												SPECIAL				SPECIAL									
02 IMAGE CHECK												SPECIAL				SPECIAL									
03 COMPLETION CHECK												SPECIAL				SPECIAL									
04												SPECIAL				SPECIAL									
05				LETTER NEAR KEY				JAPANESE				PASS				PASS									
06				FISURE AT TOP LEFT				NONE				PASS				PASS									
07				DECALLED OPTICAL FIBER				NONE W AND BLACK				PASS				PASS									
08				INSULATING PRESSURE-RESILIENCE 1				WHITE				PASS				PASS									
09				POWER CORD CORE				NONE				PASS				PASS									
10				DC POWER				A193-5720				PASS				PASS									
11				BICU				A193-5980				PASS				PASS									
12				GROUND BOARD BKT				NONE				PASS				PASS									
13				BATING BOARD				NONE				PASS				PASS									
14				TONE AUXILIARY UNIT				PASTING AFTER COVER				PASS				PASS									
15				VOLTAGE WARNING DECAL				YES				PASS				PASS									
16				VCC 1 DECAL				YES				PASS				PASS									
17				VCC 1 DECAL				YES				PASS				PASS									
18				INSULATING PRESSURE-RESILIENCE 1				DC500V/10MΩ OR MORE				PASS				PASS									
19				LEAKED CURRENT				20mA/1.25KV2sec				PASS				PASS									
20				INSULATING PRESSURE-RESILIENCE 2				IAC-110.5mA OR LESS				PASS				PASS									
21				MEASURED ITEM				IAC-110.5mA OR LESS				PASS				PASS									
22				CHECK PASS DATE				UNDER 0.10				PASS				PASS									
23												SPECIAL				SPECIAL									
24												06/67/14/8				06/67/14/8									
25																									
26																									
27																									
28																									
29																									
30																									
31																									
32																									
33																									
34																									
35																									
36																									
37																									
38																									
39																									
40																									
41																									
42																									
43																									
44																									
45																									
46																									
47																									
48																									
49																									
50																									
51																									
52																									
53																									
54																									
55																									
56																									
57																									
58																									
59																									
60																									
61																									
62																									
63																									
64																									
65																									
66																									
67																									
68																									
69																									
70																									
71																									
72																									
73																									
74																									
75																									
76																									
77																									
78																									
79																									
80																									
81																									
82																									
83																									
84																									
85																									
86																									
87																									
88																									
89																									
90																									
91																									
92																									
93																									
94																									
95																									
96																									
97																									
98																									
99																									
100																									

4031

SAVE F1

MACHINE NO F4

4033

COMPLETE F5

LOOK F7

AUTO SAVE F8

4032

LINE REJECT F9

LINE DELETE F10

ASSEMBLY SERIAL NO. F11

4053

PRINT F12



FIG.100

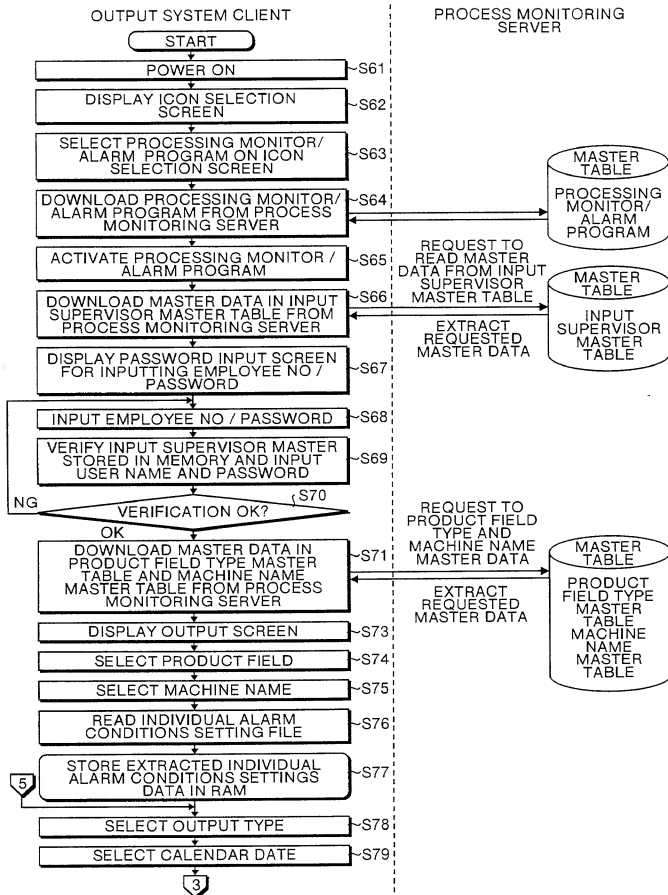


FIG.101

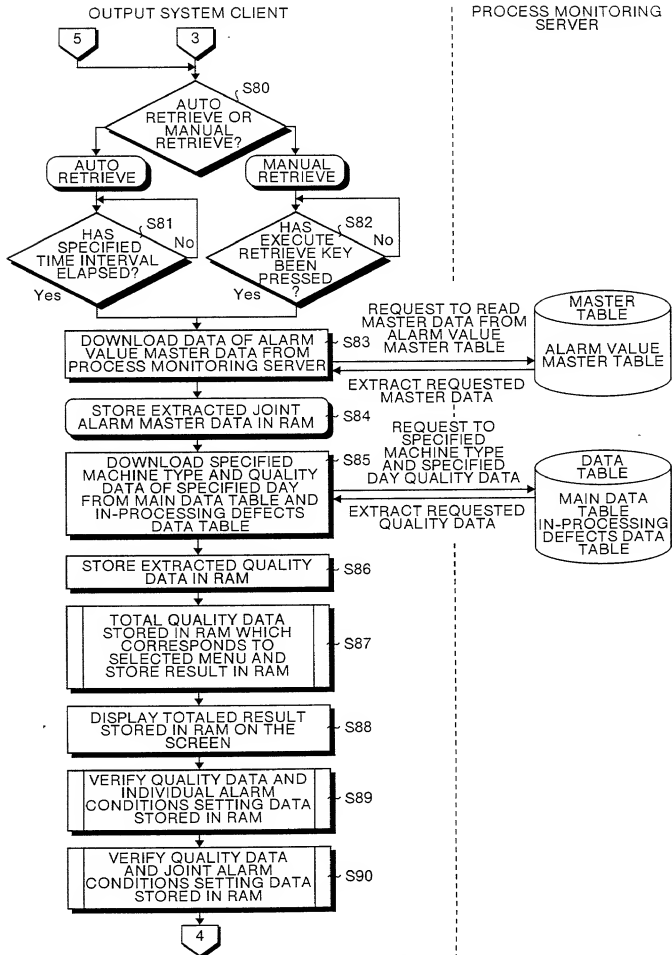


FIG.102

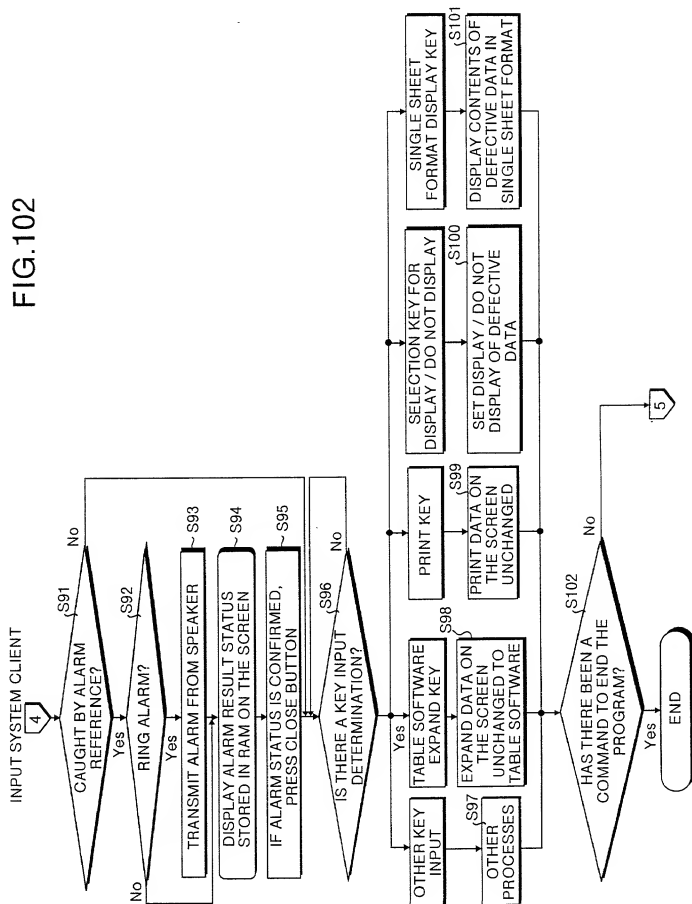


FIG.103

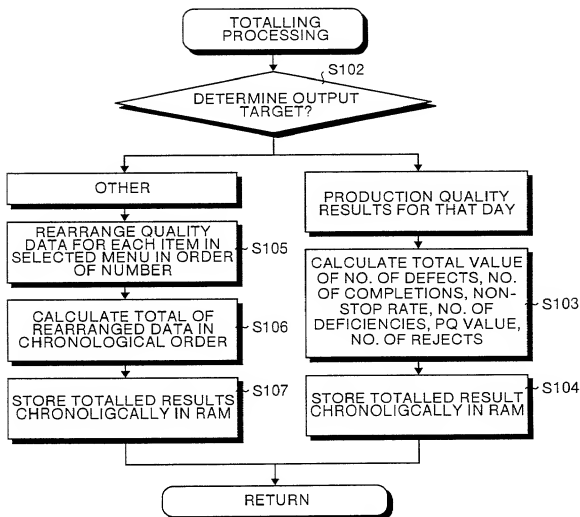


FIG.104

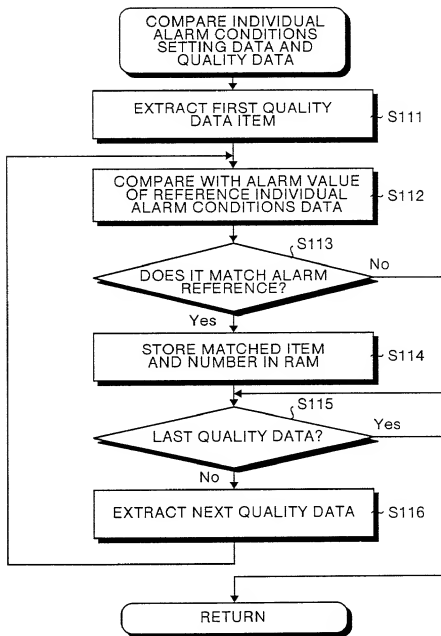


FIG.105

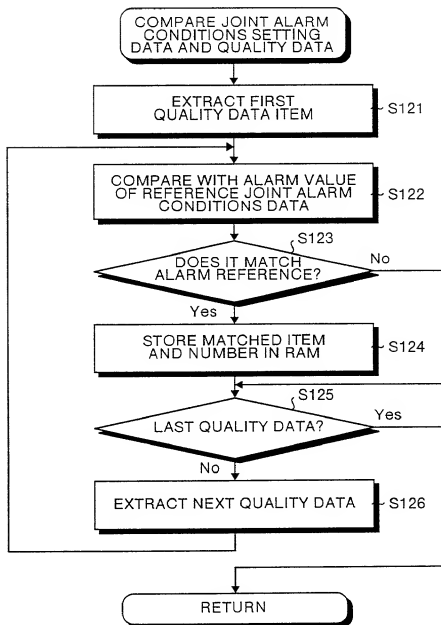


FIG.106

5008 5007 5011 5012 5000

5001 EXISTENCE PERIOD OF MACHINE TYPE DATA  
000301-000501

5002 PROD FIELD SELECTION BOX  
PDC

5003 MACHINE SELECTION BOX  
Iris/Lilac2  
SlingerC1

5004 MACHINE CODE SELECTION BOX  
ALL  
A25000  
A25015  
A25017  
A25019  
A25020  
A25026  
A25027  
A25029

5005 OUTPUT TYPE SELECTION BOX  
PRODUCTION AND QUALITY DATA INFORMATION FOR THAT DAY  
EFFECT OCCURRENCE STATUS FOR EACH PROCESS  
EFFECT OCCURRENCE STATUS FOR EACH DEFECTIVE ITEM  
OCCURRENCE STATUS FOR EACH DEFECTIVE ITEM FOR OCCURRENCE STATUS FOR EACH RANK  
REJECT / DELETION STATUS OCCURRENCE OF DEFECT REPAIR CONTENT STATUS QUALITY STATUS OF EACH PROCESS

5006 MAY 2000  
SUN MON TUE WED THU FRI SAT  
31 2 3 4 5 6  
7 8 9 10 11 12 13  
14 15 16 17 18 19 20  
21 22 23 24 25 26 27  
28 29 30 1 2 3 4  
5 6 7 8 9 10 11  
TODAY : 00/05/01

5008 5007 5011 5012 5000

5001 SPECIFIED DAY 000501

5002 RETRIEVAL INTERVAL

5003 EXECUTE / RETRIEVE

5004 LOAD SPREAD SHEET

5005 PRINT

5006 ALARM (CONDITIONS) SETTING WITHOUT SETTING

5007 CONFIRM ALARM CONDITIONS

5008 (ALARM) OFF ON

5009 (DISPLAY REFERENCE) OCCURRENCE DATE REFERENCE OCCURRENCE DATE REFERENCE

5010 5015 5016 END(EXIT)

FIG.107

SET UPDATE METHOD

PLEASE SELECT WHETHER TO  
AUTOMATICALLY UPDATE THE  
QUALITY STATUS (QUALITY  
MONITORING)  
IF AUTOMATIC, PLEASE SET THE TIME  
INTERVAL

[SETTING UPDATE METHOD]

☐ DO NOT UPDATE AUTOMATICALLY  
☒ UPDATE AUTOMATICALLY

AUTOMATIC UPDATE TIME INTERVAL

3	EVERY ... MINUTES
---	-------------------

SPECIFY IN ONE-MINUTE UNITS FROM  
1 TO 60

SET OK CANCEL

5020



FIG.108

5021

## ALARM CONDITIONS SETTING BOX

PLEASE SELECT FROM "DEFECT DIVISION" ~ "CORRESPONDING SUPERVISOR" THE ITEM FOR WHICH YOU WISH TO RING THE ALARM, AND DIRECTLY INPUT THE NUMBER OF OCCURRENCE OF THAT ITEM IN THE "ALARM VALUE" COLUMN. WHEN THE TARGET FOR THE ALARM IS ON THE "NUMBER OF OCCURRENCE" COLUMN, "ALL DEFECTS" AND "WHENEVER THAT ITEM OCCURS, PLEASE INSERT \* IN THE "ALARM VALUE" COLUMN.

THE ALARM WILL RING WHEN THE RETRIEVAL RESULT REACHES THE ALARM TARGET.

(NB, AN EMPTY "ALARM VALUE" WILL BE IGNORED)

5023

INDIVIDUAL ALARM SETTINGS			JOINT ALARM SETTINGS			5024		5022		SETTING OK		CANCEL	
NB, FOR "JURISDICTION" SELECT EITHER "REOCCURRENCE" OR "IMPORTANT", "ALL DEFECTS" AND "IDENTICAL DEFECT" ARE PRESET FIXED ITEMS.													
JURISDICTION	DEFECTIVE PROCESS	DEFECTIVE ITEM	NATURE OF DEFECT	NATURE OF DEFECT	NATURE OF DEFECT	REJECT CAUSE	RANK	RESPONSE	RESPONSE	RESPONSE	RESPONSE	ALARM VALUE	ALARM VALUE
NO	DIVISION	NAME	DEFECT	DEFECT	DEFECT			SECTOR	SECTOR	SECTOR	SECTOR		
1			ALL DEFECTS					COMPONENTS					
2			IDENTICAL DEFECT					OTHER					
3			IMAGE DEFECT		SC546			TECHNOLOGY					
4			COMMUNICATION LEAD DEFECT					DESIGN					
5								ASSEMBLY					
6								UNCLEAR					
7								COMPONENTS					
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													

DOUBLE CLICK TO SEE SELECTABLE ITEMS

EVEN WHEN ITEM CONTENTS OF ALARM TARGET ARE INPUT, EMPTY "ALARM VALUE" COLUMNS WILL BE IGNORED AS ALARM TARGETS.

5021

FIG.109

ALARM CONDITIONS SETTING BOX

5023

PLEASE SELECT FROM "DEFECT DIVISION" ~ "CORRESPONDING SUPERVISOR" THE ITEM FOR WHICH YOU WISH TO RING THE ALARM. THE NUMBER OF OCCURRENCES OF THE ITEM IN THE "ALARM VALUE" COLUMN. WHEN THE TARGET REACHES THE ALARM, THE NUMBER OF OCCURRENCES OF THE ITEM IN THE "ALARM VALUE" COLUMN. WHENEVER THAT ITEM OCCURS, PLEASE INSERT "\*" IN THE "ALARM VALUE" COLUMN. THE ALARM WILL RING WHEN THE RETRIEVAL RESULT REACHES THE ALARM TARGET. (NB. AN EMPTY "ALARM VALUE" WILL BE IGNORED)

INDIVIDUAL ALARM SETTINGS

(NB. FOR "JURISDICTION" SELECT EITHER "REOCCURRENCE" OR "IMPORTANT".)

INDIVIDUAL ALARM SETTINGS		JOINT ALARM SETTINGS				5024		5025	
						SETTING OK		CANCEL	
JURIS. NO. DIVISION	DEFECTIVE PROCESS NAME	DEFECTIVE ITEM	NATURE OF DEFECT	REJECT CAUSE	RESPON- SIBLE SECTOR	RESPON- SIBLE SECTOR	RESPON- SIBLE SECTOR	ALARM VALUE	
1		IDENTICAL DEFECT	1						
2		SC DEFECT			TECHNOLOGY			1*	
3		DEFECTIVE CRIMPING			TECHNOLOGY			1*	
4		UNSAFETY STANDARD			TECHNOLOGY			1*	
5		ASSEMBLY DEFECT			ASSEMBLY			1*	
6		COMPONENT CRIMPING			COMPONENTS			3*	
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									

EVEN WHEN ITEM CONTENTS OF ALARM TARGET ARE INPUT, EMPTY "ALARM VALUE" COLUMNS WILL BE IGNORED AS ALARM TARGETS.

FIG.110

EXISTENCE PERIOD OF MACHINE TYPE DATA		SPECIFIED DAY		000619	NO. OF COMPLETIONS=40	NO. OF INPUTS=33	(ALARM)		(DISPLAY REFERENCE)	
PRODUCT FIELD SELECTION BOX		RETRIEVAL INTERVAL			ALARM CONDITIONS	WITHOUT SETTING	CONFIRM ALARM	OFF	ON	OCCURRENCE
MACHINE SELECTION BOX		EXECUTE/RETRIEVE		LOAD SPREAD SHEET	PRINT	5009	5013	5010	5014	5015
PCU:THICKNESS		Catalva:THICKNESS								5016
T/B:THICKNESS		MACHINE CODE SELECTION BOX								END(EXIT)
A25703		A25711								
A25719		A25722								
A25729		A25739								
A25749										
A25759										
A25769										
A25779										
A25789										
A25799										
A25809										
A25819										
A25829										
A25839										
A25849										
A25859										
A25869										
A25879										
A25889										
A25899										
A25909										
A25919										
A25929										
A25939										
A25949										
A25959										
A25969										
A25979										
A25989										
A25999										
A26009										
A26019										
A26029										
A26039										
A26049										
A26059										
A26069										
A26079										
A26089										
A26099										
A26109										
A26119										
A26129										
A26139										
A26149										
A26159										
A26169										
A26179										
A26189										
A26199										
A26209										
A26219										
A26229										
A26239										
A26249										
A26259										
A26269										
A26279										
A26289										
A26299										
A26309										
A26319										
A26329										
A26339										
A26349										
A26359										
A26369										
A26379										
A26389										
A26399										
A26409										
A26419										
A26429										
A26439										
A26449										
A26459										
A26469										
A26479										
A26489										
A26499										
A26509										
A26519										
A26529										
A26539										
A26549										
A26559										
A26569										
A26579										
A26589										
A26599										
A26609										
A26619										
A26629										
A26639										
A26649										
A26659										
A26669										
A26679										
A26689										
A26699										
A26709										
A26719										
A26729										
A26739										
A26749										
A26759										
A26769										
A26779										
A26789										
A26799										
A26809										
A26819										
A26829										
A26839										
A26849										
A26859										
A26869										
A26879										
A26889										
A26899										
A26909										
A26919										
A26929										
A26939										
A26949										
A26959										
A26969										
A26979										
A26989										
A26999										
A27009										
A27019										
A27029										
A27039										
A27049										
A27059										
A27069										
A27079										
A27089										
A27099										
A27109										
A27119										
A27129										
A27139										
A27149										
A27159										
A27169										
A27179										
A27189										
A27199										
A27209										
A27219										
A27229										
A27239										
A27249										
A27259										
A27269										
A27279										
A27289										
A27299										
A27309										
A27319										
A27329										
A27339										
A27349										
A27359										
A27369										
A27379										
A27389										
A27399										
A27409										
A27419										
A27429										
A27439										
A27449										
A27459										
A27469										
A27479										
A27489										
A27499										
A27509										

5011 5012

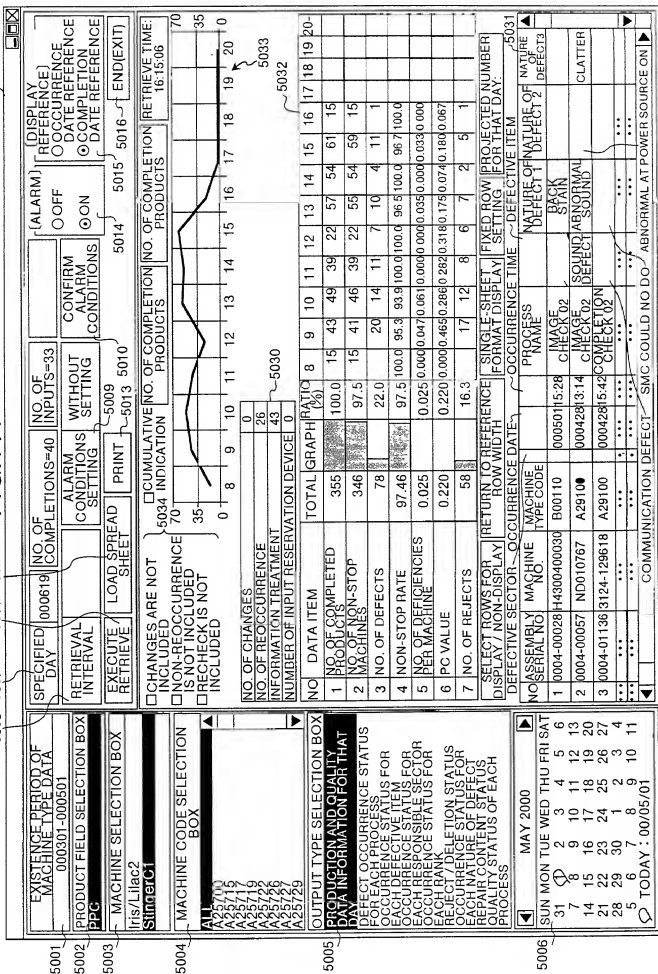


FIG. 112

EXISTENCE PERIOD OF MACHINE TYPE DATA		SPECIFIED DAY		NO. OF COMPLETIONS=40		NO. OF INPUTS=33		(ALARM) REFERENCE]	
PRODUCT FIELD SELECTION BOX		RETRIEVAL INTERVAL		ALARM CONDITIONS SETTING		WITHOUT SETTING		O OFF O ON	
MACHINE SELECTION BOX		EXECUTIVE RETRIEVE		LOAD SPREAD SHEET		PRINT		CONFIRM ALARM CONDITIONS	
Galliva THICKNESS		PCU THICKNESS		T/B THICKNESS		5009		5014	
MACHINE CODE SELECTION BOX		NO. OF CHANGES		NO. OF REOCCURRENCE		NO. OF NO-REOCCURRENCE IS NOT INCLUDED		RETRIEVE TIME:14:02:15	
A357700		6		8		0		5030	
A357715		0		0		0		5033	
A357719		0		0		0		5032	
A357726		0		0		0		5035	
A357739		0		0		0		5034	
A357750		0		0		0		5036	

EXISTENCE PERIOD OF MACHINE TYPE DATA		SPECIFIED DAY		NO. OF COMPLETIONS=40		NO. OF INPUTS=33		(ALARM) REFERENCE]	
PRODUCT FIELD SELECTION BOX		RETRIEVAL INTERVAL		ALARM CONDITIONS SETTING		WITHOUT SETTING		O OFF O ON	
MACHINE SELECTION BOX		EXECUTIVE RETRIEVE		LOAD SPREAD SHEET		PRINT		CONFIRM ALARM CONDITIONS	
Galliva THICKNESS		PCU THICKNESS		T/B THICKNESS		5009		5014	
MACHINE CODE SELECTION BOX		NO. OF CHANGES		NO. OF REOCCURRENCE		NO. OF NO-REOCCURRENCE IS NOT INCLUDED		RETRIEVE TIME:14:02:15	
A357700		6		8		0		5030	
A357715		0		0		0		5033	
A357719		0		0		0		5032	
A357726		0		0		0		5035	
A357739		0		0		0		5034	
A357750		0		0		0		5036	

EXISTENCE PERIOD OF MACHINE TYPE DATA		SPECIFIED DAY		NO. OF COMPLETIONS=40		NO. OF INPUTS=33		(ALARM) REFERENCE]	
PRODUCT FIELD SELECTION BOX		RETRIEVAL INTERVAL		ALARM CONDITIONS SETTING		WITHOUT SETTING		O OFF O ON	
MACHINE SELECTION BOX		EXECUTIVE RETRIEVE		LOAD SPREAD SHEET		PRINT		CONFIRM ALARM CONDITIONS	
Galliva THICKNESS		PCU THICKNESS		T/B THICKNESS		5009		5014	
MACHINE CODE SELECTION BOX		NO. OF CHANGES		NO. OF REOCCURRENCE		NO. OF NO-REOCCURRENCE IS NOT INCLUDED		RETRIEVE TIME:14:02:15	
A357700		6		8		0		5030	
A357715		0		0		0		5033	
A357719		0		0		0		5032	
A357726		0		0		0		5035	
A357739		0		0		0		5034	
A357750		0		0		0		5036	

EXISTENCE PERIOD OF MACHINE TYPE DATA		SPECIFIED DAY		NO. OF COMPLETIONS=40		NO. OF INPUTS=33		(ALARM) REFERENCE]	
PRODUCT FIELD SELECTION BOX		RETRIEVAL INTERVAL		ALARM CONDITIONS SETTING		WITHOUT SETTING		O OFF O ON	
MACHINE SELECTION BOX		EXECUTIVE RETRIEVE		LOAD SPREAD SHEET		PRINT		CONFIRM ALARM CONDITIONS	
Galliva THICKNESS		PCU THICKNESS							



FIG.114

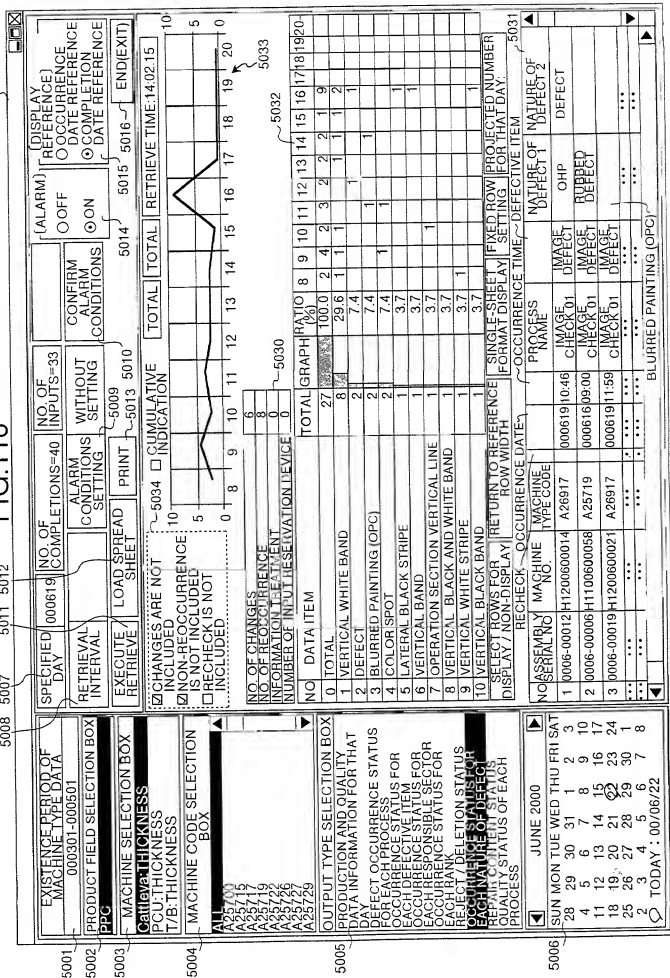
5001		EXISTENCE PERIOD OF MACHINE TYPE DATA		5008 5007		5011 5012		5015 5016		5017 5018		5019 5020		5021 5022		5023 5024		5025 5026		5027 5028		5029 5030		5031 5032		5033 5034		5035 5036		5037 5038		5039 5040		5041 5042		5043 5044		5045 5046		5047 5048		5049 5050		5051 5052		5053 5054		5055 5056		5057 5058		5059 5060		5061 5062		5063 5064		5065 5066		5067 5068		5069 5070		5071 5072		5073 5074		5075 5076		5077 5078		5079 5080		5081 5082		5083 5084		5085 5086		5087 5088		5089 5090		5091 5092		5093 5094		5095 5096		5097 5098		5099 5100		5101 5102		5103 5104		5105 5106		5107 5108		5109 5110		5111 5112		5113 5114		5115 5116		5117 5118		5119 5120		5121 5122		5123 5124		5125 5126		5127 5128		5129 5130		5131 5132		5133 5134		5135 5136		5137 5138		5139 5140		5141 5142		5143 5144		5145 5146		5147 5148		5149 5150		5151 5152		5153 5154		5155 5156		5157 5158		5159 5160		5161 5162		5163 5164		5165 5166		5167 5168		5169 5170		5171 5172		5173 5174		5175 5176		5177 5178		5179 5180		5181 5182		5183 5184		5185 5186		5187 5188		5189 5190		5191 5192		5193 5194		5195 5196		5197 5198		5199 5200		5201 5202		5203 5204		5205 5206		5207 5208		5209 5210		5211 5212		5213 5214		5215 5216		5217 5218		5219 5220		5221 5222		5223 5224		5225 5226		5227 5228		5229 5230		5231 5232		5233 5234		5235 5236		5237 5238		5239 5240		5241 5242		5243 5244		5245 5246		5247 5248		5249 5250		5251 5252		5253 5254		5255 5256		5257 5258		5259 5260		5261 5262		5263 5264		5265 5266		5267 5268		5269 5270		5271 5272		5273 5274		5275 5276		5277 5278		5279 5280		5281 5282		5283 5284		5285 5286		5287 5288		5289 5290		5291 5292		5293 5294		5295 5296		5297 5298		5299 5300		5301 5302		5303 5304		5305 5306		5307 5308		5309 5310		5311 5312		5313 5314		5315 5316		5317 5318		5319 5320		5321 5322		5323 5324		5325 5326		5327 5328		5329 5330		5331 5332		5333 5334		5335 5336		5337 5338		5339 5340		5341 5342		5343 5344		5345 5346		5347 5348		5349 5350		5351 5352		5353 5354		5355 5356		5357 5358		5359 5360		5361 5362		5363 5364		5365 5366		5367 5368		5369 5370		5371 5372		5373 5374		5375 5376		5377 5378		5379 5380		5381 5382		5383 5384		5385 5386		5387 5388		5389 5390		5391 5392		5393 5394		5395 5396		5397 5398		5399 5400		5401 5402		5403 5404		5405 5406		5407 5408		5409 5410		5411 5412		5413 5414		5415 5416		5417 5418		5419 5420		5421 5422		5423 5424		5425 5426		5427 5428		5429 5430		5431 5432		5433 5434		5435 5436		5437 5438		5439 5440		5441 5442		5443 5444		5445 5446		5447 5448		5449 5450		5451 5452		5453 5454		5455 5456		5457 5458		5459 5460		5461 5462		5463 5464		5465 5466		5467 5468		5469 5470		5471 5472		5473 5474		5475 5476		5477 5478		5479 5480		5481 5482		5483 5484		5485 5486		5487 5488		5489 5490		5491 5492		5493 5494		5495 5496		5497 5498		5499 5500		5501 5502		5503 5504		5505 5506		5507 5508		5509 5510		5511 5512		5513 5514		5515 5516		5517 5518		5519 5520		5521 5522		5523 5524		5525 5526		5527 5528		5529 5530		5531 5532		5533 5534		5535 5536		5537 5538		5539 5540		5541 5542		5543 5544		5545 5546		5547 5548		5549 5550		5551 5552		5553 5554		5555 5556		5557 5558		5559 5560		5561 5562		5563 5564		5565 5566		5567 5568		5569 5570		5571 5572		5573 5574		5575 5576		5577 5578		5579 5580		5581 5582		5583 5584		5585 5586		5587 5588		5589 5590		5591 5592		5593 5594		5595 5596		5597 5598		5599 5600		5601 5602		5603 5604		5605 5606		5607 5608		5609 5610		5611 5612		5613 5614		5615 5616		5617 5618		5619 5620		5621 5622		5623 5624		5625 5626		5627 5628		5629 5630		5631 5632		5633 5634		5635 5636		5637 5638		5639 5640		5641 5642		5643 5644		5645 5646		5647 5648		5649 5650		5651 5652		5653 5654		5655 5656		5657 5658		5659 5660		5661 5662		5663 5664		5665 5666		5667 5668		5669 5670		5671 5672		5673 5674		5675 5676		5677 5678		5679 5680		5681 5682		5683 5684		5685 5686		5687 5688		5689 5690		5691 5692		5693 5694		5695 5696		5697 5698		5699 5700		5701 5702		5703 5704		5705 5706		5707 5708		5709 5710		5711 5712		5713 5714		5715 5716		5717 5718		5719 5720		5721 5722		5723 5724		5725 5726		5727 5728		5729 5730		5731 5732		5733 5734		5735 5736		5737 5738		5739 5740		5741 5742		5743 5744		5745 5746		5747 5748		5749 5750		5751 5752		5753 5754		5755 5756		5757 5758		5759 5760		5761 5762		5763 5764		5765 5766		5767 5768		5769 5770		5771 5772		5773 5774		5775 5776		5777 5778		5779 5780		5781 5782		5783 5784		5785 5786		5787 5788		5789 5790		5791 5792		5793 5794		5795 5796		5797 5798		5799 5800		5801 5802		5803 5804		5805 5806		5807 5808		5809 5810		5811 5812		5813 5814		5815 5816		5817 5818		5819 5820		5821 5822		5823 5824		5825 5826		5827 5828		5829 5830		5831 5832		5833 5834		5835 5836		5837 5838		5839 5840		5841 5842		5843 5844		5845 5846		5847 5848		5849 5850		5851 5852		5853 5854		5855 5856		5857 5858		5859 5860		5861 5862		5863 5864		5865 5866		5867 5868		5869 5870		5871 5872		5873 5874		5875 5876		5877 5878		5879 5880		5881 5882		5883 5884		5885 5886		5887 5888		5889 5890		5891 5892		5893 5894		5895 5896		5897 5898		5899 5900		5901 5902		5903 5904		5905 5906		5907 5908		5909 5910		5911 5912		5913 5914		5915 5916		5917 5918		5919 5920		5921 5922		5923 5924		5925 5926		5927 5928		5929 5930		5931 5932		5933 5934		5935 5936		5937 5938		5939 5940		5941 5942		5943 5944		5945 5946		5947 5948		5949 5950		5951 5952		5953 5954		5955 5956		5957 5958		5959 5960		5961 5962		5963 5964		5965 5966		5967 5968		5969 5970		5971 5972		5973 5974		5975 5976		5977 5978		5979 5980		5981 5982		5983 5984		5985 5986		5987 5988		5989 5990		5991 5992		5993 5994		5995 5996		5997 5998		5999 6000		6001 6002		6003 6004		6005 6006		6007 6008		6009 6010		6011 6012		6013 6014		6015 6016		6017 6018		6019 6020		6021 6022		6023 6024		6025 6026		6027 6028		6029 6030		6031 6032		6033 6034		6035 6036		6037 6038		6039 6040		6041 6042		6043 6044		6045 6046		6047 6048		6049 6050		6051 6052		6053 6054		6055 6056		6057 6058		6059 6060		6061 6062		6063 6064		6065 6066		6067 6068		6069 6070		6071 6072		6073 6074		6075 6076		6077 6078		6079 6080		6081 6082		6083 6084		6085 6086		6087 6088		6089 6090		6091 6092		6093 6094		6095 6096		6097 6098		6099 6100		6101 6102		6103 6104		6105 6106		6107 6108		6109 6110		6111 6112		6113 6114		6115 6116		6117 6118		6119 6120		6121 6122		6123 6124		6125 6126		6127 6128		6129 6130		6131 6132		6133 6134		6135 6136		6137 6138		6139 6140		6141 6142		6143 6144		6145 6146		6147 6148		6149 6150		6151 6152		6153 6154		6155 6156		6157 6158		6159 6160		6161 6162		6163 6164		6165 6166		6167 6168		6169 6170		6171 6172		6173 6174		6175 6176		6177 6178		6179 6180		6181 6182		6183 6184		6185 6186		6187 6188		6189 6190		6191 6192		6193 6194		6195 6196		6197 6198		6199 6200		6201 6202		6203 6204		6205 6206		6207 6208		6209 6210		6211 6212		6213 6214		6215 6216		6217 6218		6219 6220		6221 6222		6223 6224		6225 6226		6227 6228		6229 6230		6231 6232		6233 6234		6235 6236		6237 6238		6239 6240		6241 6242		6243 6244		6245 6246		6247 6248		6249 6250		6251 6252		6253 6254		6255 6256		6257 6258		6259 6260		6261 6262		6263 6264		6265 6266		6267 6268		6269 6270		6271 6272		6273 6274		6275 6276		6277 6278		6279 6280		6281 6282		6283 6284		6285 6286		6287 6288		6289 6290		6291 6292		6293 6294		6295 6296		6297 6298		6299 6300		6301 6302		6303 6304		6305 6306		6307 6308		6309 6310		6311 6312		6313 6314		6315 6316		6317 6318		6319 6320		6321 6322		6323 6324		6325 6326		6327 6328		6329 6330		6331 6332		6333 6334		6335 6336		6337 6338		6339 6340		6341 6342		6343 6344		6345 6346		6347 6348		6349 6350		6351 6352		6353 6354		6355 6356		6357 6358		6359 6360	
------	--	---------------------------------------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--

5000





FIG. 116



5000





5000

5012

501

5007

500

[illegible]

5031

AT:

# WU

ING

OFFICE

CCURB

110

DATE \_\_\_\_\_

## REFERENCE

1000

100	100
-----	-----

•

3

1

1

22

PHD

**FIG.120**

5008 5007 5011 5012 5015 5000

EXISTENCE PERIOD OF MACHINE TYPE DATA	SPECIFIED DAY 000619	NO. OF COMPLETIONS-40	NO. OF INPUTS-83	(ALARM) (REFERENCE) OFF ON	(DISPLAY) (REFERENCE) OCCURRENCE DATE COMPLETION DATE
PRODUCT FIELD SELECTION BOX PPC	RETRIEVAL INTERVAL	ALARM CONDITIONS SETTING	WITHOUT SETTING	CONFIRM ALARM CONDITIONS	
MACHINE SELECTION BOX Cattiva THICKNESS PCU: THICKNESS T/B: THICKNESS	EXECUTE RETRIEVE	LOAD SPREAD SHEET	PRINT	5009	5014 5016
MACHINE CODE SELECTION BOX A25/10 A25/15 A25/17 A25/19 A25/26 A25/27 A25/29	CHANGES ARE NOT INCLUDED NON-REOCCURRENCE IS NOT INCLUDED RECHECK IS NOT INCLUDED		5034 <input type="checkbox"/> CUMULATIVE INDICATION		RETRIEVE TIME: 14:02:15

5004

5005

5006

5007

5008

5009

5010

5011

5012

5013

5014

5015

5016

5017

5018

5019

5020

5021

5022

5023

5024

5025

5026

5027

5028

5029

5030

5031

5032

5033

5034

5035

5036

5037

5038

5039

5040

5041

5042

5043

5044

5045

5046

5047

5048

5049

5050

5051

5052

5053

5054

5055

5056

5057

5058

5059

5060

5061

5062

5063

5064

5065

5066

5067

5068

5069

5070

5071

5072

5073

5074

5075

5076

5077

5078

5079

5080

5081

5082

5083

5084

5085

5086

5087

5088

5089

5090

5091

5092

5093

5094

5095

5096

5097

5098

5099

5100

5101

5102

5103

5104

5105

5106

5107

5108

5109

5110

5111

5112

5113

5114

5115

5116

5117

5118

5119

5120

5121

5122

5123

5124

5125

5126

5127

5128

5129

5130

5131

5132

5133

5134

5135

5136

5137

5138

5139

5140

5141

5142

5143

5144

5145

5146

5147

5148

5149

5150

5151

5152

5153

5154

5155

5156

5157

5158

5159

5160

5161

5162

5163

5164

5165

5166

5167

5168

5169

5170

5171

5172

5173

5174

5175

5176

5177

5178

5179

5180

5181

5182

5183

5184

5185

5186

5187

5188

5189

5190

5191

5192

5193

5194

5195

5196

5197

5198

5199

5200

5201

5202

5203

5204

5205

5206

5207

5208

5209

5210

5211

5212

5213

5214

5215

5216

5217

5218

5219

5220

5221

5222

5223

5224

5225

5226

5227

5228

5229

5230

5231

5232

5233

5234

5235

5236

5237

5238

5239

5240

5241

5242

5243

5244

5245

5246

5247

5248

5249

5250

5251

5252

5253

5254

5255

5256

5257

5258

5259

5260

5261

5262

5263

5264

5265

5266

5267

5268

5269

5270

5271

5272

5273

5274

5275

5276

5277

5278

5279

5280

5281

5282

5283

5284

5285

5286

5287

5288

5289

5290

5291

5292

5293

5294

5295

5296

5297

5298

5299

5300

5301

5302

5303

5304

5305

5306

5307

5308

5309

5310

5311

5312

5313

5314

5315

5316

5317

5318

5319

5320

5321

5322

5323

5324

5325

5326

5327

5328

5329

5330

5331

5332

5333

5334

5335

5336

5337

5338

5339

5340

5341

5342

5343

5344

5345

5346

5347

5348

5349

5350

5351

5352

5353

5354

5355

5356

5357

5358

5359

5360

5361

5362

5363

5364

5365

5366

5367

5368

5369

5370

5371

5372

5373

5374

5375

5376

5377

5378

5379

5380

5381

5382

5383

5384

5385

5386

5387

5388

5389

5390

5391

5392

5393

5394

5395

5396

5397

5398

5399

5400

5401

5402

5403

5404

5405

5406

5407

5408

5409

5410

5411

5412

5413

5414

5415

5416

5417

5418

5419

FIG.121

5001	EXISTENCE PERIOD OF MACHINE TYPE DATA	5008	5007	5011	5012	5014	5015	5016	5017	5018	5019	5020	5021	5022	5023	5024	5025	5026	5027	5028	5029	5030	5031	5032	5033	5034	5035	5036	5037	5038	5039	5040	5041	5042	5043	5044	5045	5046	5047	5048	5049	5050	5051	5052	5053	5054	5055	5056	5057	5058	5059	5060	5061	5062	5063	5064	5065	5066	5067	5068	5069	5070	5071	5072	5073	5074	5075	5076	5077	5078	5079	5080	5081	5082	5083	5084	5085	5086	5087	5088	5089	5090	5091	5092	5093	5094	5095	5096	5097	5098	5099	5100	5101	5102	5103	5104	5105	5106	5107	5108	5109	5110	5111	5112	5113	5114	5115	5116	5117	5118	5119	5120	5121	5122	5123	5124	5125	5126	5127	5128	5129	5130	5131	5132	5133	5134	5135	5136	5137	5138	5139	5140	5141	5142	5143	5144	5145	5146	5147	5148	5149	5150	5151	5152	5153	5154	5155	5156	5157	5158	5159	5160	5161	5162	5163	5164	5165	5166	5167	5168	5169	5170	5171	5172	5173	5174	5175	5176	5177	5178	5179	5180	5181	5182	5183	5184	5185	5186	5187	5188	5189	5190	5191	5192	5193	5194	5195	5196	5197	5198	5199	5200	5201	5202	5203	5204	5205	5206	5207	5208	5209	5210	5211	5212	5213	5214	5215	5216	5217	5218	5219	5220	5221	5222	5223	5224	5225	5226	5227	5228	5229	5230	5231	5232	5233	5234	5235	5236	5237	5238	5239	5240	5241	5242	5243	5244	5245	5246	5247	5248	5249	5250	5251	5252	5253	5254	5255	5256	5257	5258	5259	5260	5261	5262	5263	5264	5265	5266	5267	5268	5269	5270	5271	5272	5273	5274	5275	5276	5277	5278	5279	5280	5281	5282	5283	5284	5285	5286	5287	5288	5289	5290	5291	5292	5293	5294	5295	5296	5297	5298	5299	5300	5301	5302	5303	5304	5305	5306	5307	5308	5309	5310	5311	5312	5313	5314	5315	5316	5317	5318	5319	5320	5321	5322	5323	5324	5325	5326	5327	5328	5329	5330	5331	5332	5333	5334	5335	5336	5337	5338	5339	5340	5341	5342	5343	5344	5345	5346	5347	5348	5349	5350	5351	5352	5353	5354	5355	5356	5357	5358	5359	5360	5361	5362	5363	5364	5365	5366	5367	5368	5369	5370	5371	5372	5373	5374	5375	5376	5377	5378	5379	5380	5381	5382	5383	5384	5385	5386	5387	5388	5389	5390	5391	5392	5393	5394	5395	5396	5397	5398	5399	5400	5401	5402	5403	5404	5405	5406	5407	5408	5409	5410	5411	5412	5413	5414	5415	5416	5417	5418	5419	5420	5421	5422	5423	5424	5425	5426	5427	5428	5429	5430	5431	5432	5433	5434	5435	5436	5437	5438	5439	5440	5441	5442	5443	5444	5445	5446	5447	5448	5449	5450	5451	5452	5453	5454	5455	5456	5457	5458	5459	5460	5461	5462	5463	5464	5465	5466	5467	5468	5469	5470	5471	5472	5473	5474	5475	5476	5477	5478	5479	5480	5481	5482	5483	5484	5485	5486	5487	5488	5489	5490	5491	5492	5493	5494	5495	5496	5497	5498	5499	5500	5501	5502	5503	5504	5505	5506	5507	5508	5509	5510	5511	5512	5513	5514	5515	5516	5517	5518	5519	5520	5521	5522	5523	5524	5525	5526	5527	5528	5529	5530	5531	5532	5533	5534	5535	5536	5537	5538	5539	5540	5541	5542	5543	5544	5545	5546	5547	5548	5549	5550	5551	5552	5553	5554	5555	5556	5557	5558	5559	5560	5561	5562	5563	5564	5565	5566	5567	5568	5569	5570	5571	5572	5573	5574	5575	5576	5577	5578	5579	5580	5581	5582	5583	5584	5585	5586	5587	5588	5589	5590	5591	5592	5593	5594	5595	5596	5597	5598	5599	5600	5601	5602	5603	5604	5605	5606	5607	5608	5609	5610	5611	5612	5613	5614	5615	5616	5617	5618	5619	5620	5621	5622	5623	5624	5625	5626	5627	5628	5629	5630	5631	5632	5633	5634	5635	5636	5637	5638	5639	5640	5641	5642	5643	5644	5645	5646	5647	5648	5649	5650	5651	5652	5653	5654	5655	5656	5657	5658	5659	5660	5661	5662	5663	5664	5665	5666	5667	5668	5669	5670	5671	5672	5673	5674	5675	5676	5677	5678	5679	5680	5681	5682	5683	5684	5685	5686	5687	5688	5689	5690	5691	5692	5693	5694	5695	5696	5697	5698	5699	5700	5701	5702	5703	5704	5705	5706	5707	5708	5709	5710	5711	5712	5713	5714	5715	5716	5717	5718	5719	5720	5721	5722	5723	5724	5725	5726	5727	5728	5729	5730	5731	5732	5733	5734	5735	5736	5737	5738	5739	5740	5741	5742	5743	5744	5745	5746	5747	5748	5749	5750	5751	5752	5753	5754	5755	5756	5757	5758	5759	5760	5761	5762	5763	5764	5765	5766	5767	5768	5769	5770	5771	5772	5773	5774	5775	5776	5777	5778	5779	5780	5781	5782	5783	5784	5785	5786	5787	5788	5789	5790	5791	5792	5793	5794	5795	5796	5797	5798	5799	5800	5801	5802	5803	5804	5805	5806	5807	5808	5809	5810	5811	5812	5813	5814	5815	5816	5817	5818	5819	5820	5821	5822	5823	5824	5825	5826	5827	5828	5829	5830	5831	5832	5833	5834	5835	5836	5837	5838	5839	5840	5841	5842	5843	5844	5845	5846	5847	5848	5849	5850	5851	5852	5853	5854	5855	5856	5857	5858	5859	5860	5861	5862	5863	5864	5865	5866	5867	5868	5869	5870	5871	5872	5873	5874	5875	5876	5877	5878	5879	5880	5881	5882	5883	5884	5885	5886	5887	5888	5889	5890	5891	5892	5893	5894	5895	5896	5897	5898	5899	5900	5901	5902	5903	5904	5905	5906	5907	5908	5909	5910	5911	5912	5913	5914	5915	5916	5917	5918	5919	5920	5921	5922	5923	5924	5925	5926	5927	5928	5929	5930	5931	5932	5933	5934	5935	5936	5937	5938	5939	5940	5941	5942	5943	5944	5945	5946	5947	5948	5949	5950	5951	5952	5953	5954	5955	5956	5957	5958	5959	5960	5961	5962	5963	5964	5965	5966	5967	5968	5969	5970	5971	5972	5973	5974	5975	5976	5977	5978	5979	5980	5981	5982	5983	5984	5985	5986	5987	5988	5989	5990	5991	5992	5993	5994	5995	5996	5997	5998	5999	6000	6001	6002	6003	6004	6005	6006	6007	6008	6009	6010	6011	6012	6013	6014	6015	6016	6017	6018	6019	6020	6021	6022	6023	6024	6025	6026	6027	6028	6029	6030	6031	6032	6033	6034	6035	6036	6037	6038	6039	6040	6041	6042	6043	6044	6045	6046	6047	6048	6049	6050	6051	6052	6053	6054	6055	6056	6057	6058	6059	6060	6061	6062	6063	6064	6065	6066	6067	6068	6069	6070	6071	6072	6073	6074	6075	6076	6077	6078	6079	6080	6081	6082	6083	6084	6085	6086	6087	6088	6089	6090	6091	6092	6093	6094	6095	6096	6097	6098	6099	6100	6101	6102	6103	6104	6105	6106	6107	6108	6109	6110	6111	6112	6113	6114	6115	6116	6117	6118	6119	6120	6121	6122	6123	6124	6125	6126	6127	6128	6129	6130	6131	6132	6133	6134	6135	6136	6137	6138	6139	6140	6141	6142	6143	6144	6145	6146	6147	6148	6149	6150	6151	6152	6153	6154	6155	6156	6157	6158	6159	6160	6161	6162	6163	6164	6165	6166	6167	6168	6169	6170	6171	6172	6173	6174	6175	6176	6177	6178	6179	6180	6181	6182	6183	6184	6185	6186	6187	6188	6189	6190	6191	6192	6193	6194	6195	6196	6197	6198	6199	6200	6201	6202	6203	6204	6205	6206	6207	6208	6209	6210	6211	6212	6213	6214	6215	6216	6217	6218	6219	6220	6221	6222	6223	6224	6225	6226	6227	6228	6
------	---------------------------------------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	---

001000'25045560

FIG.122

## ALARM STATUS NOTIFICATION DIALOGUE



MACHINE: STINGER C1

 XXX NOTIFICATION OF ALARM STATUS RESULT XXX  
 RED: ALARM ITEM  
 BLUE: ALARM CONDITIONS SET ITEM (NO ALARM)  
 BLACK: OUTSIDE ALARM CONDITIONS SETTING

RETRIEVAL DATE: 000522

RETRIEVAL TIME: 11:01:05

RETRIEVAL DATE: 000522

PRINT

CLOSE

## INDIVIDUAL ALARM RESULTS

## JOINT ALARM RESULTS

NO	JURIS- DICTION	DEFECTIVE DIVISION	PROCESS NAME	DEFECTIVE ITEM	NATURE OF DEFECT1	NATURE OF DEFECT2	NATURE OF DEFECT3	REJECT CAHNGES	RANK	RESPON- SIBLE SECTOR 1	RESPON- SIBLE SECTOR 2	ALARM VALUE	RESULT
1				ALL DEFECTS									37
2				IDENTICAL DEFECT								3	2
3				IMAGE DEFECT								1*	0
4				COMMUNI- CATION DEFECT	SC546							2	0
5					EARTH LEAD								
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													

CLICK ON RED ALARM ITEM TO DISPLAY INFORMATION IN DETAIL

1001

	JURIS- DICTION	DEFECTIVE DIVISION	PROCESS	DEFECTIVE ITEM	NATURE OF DEFECT1	NATURE OF DEFECT2	NATURE OF DEFECT3	REJECT CAHNES RANK	RESPON- SIBLE SECTOR 1	RESPON- SIBLE SECTOR 2	ALARM VALUE	RESULT
	2			IDENTICAL DEFECT							3	2

[illegible]



FIG.124

## ALARM STATUS NOTIFICATION DIALOGUE



MACHINE: STINGER C1

XXX NOTIFICATION OF ALARM STATUS RESULT XXX

RETRIEVAL DATE: 000523

RETRIEVAL DATE: 000523

 RED: ALARM ITEM  
 BLUE: ALARM CONDITIONS SET ITEM (NO ALARM)  
 BLACK: OUTSIDE ALARM CONDITIONS SETTING

RETRIEVAL TIME: 17:06:50

INDIVIDUAL ALARM RESULTS

JOINT ALARM RESULTS

PRINT

CLOSE

 ※) RED "BOLD WORDS" MEAN UPDATE ALARM DATA, LIGHT RED "FINE WORDS" MEAN ALARMED DATA ON THAT DAY  
 OR DATA OF OVERD ALARM VALUE.

NO	JURIS- DICTION	DEFECTIVE DIVISION	PROCESS NAME	DEFECTIVE ITEM	NATURE OF DEFECT	NATURE OF DEFECT	REJECT CAHNGES	RANK	RESPON- SIBLE SECTOR	RE SE	ALARM VALUE	RESULT
1				IDENTICAL DEFECT								0
2				SC DEFECT					TECHNOLOGY		1*	0
3				DEFECTIVE CRIMPING		SC546			TECHNOLOGY		1*	0
4				SAFETY STIPURATION DEFECTIVE		EARTH LEAD			TECHNOLOGY		1*	0
5	:	:	:	:	:	:	:	:	:	:	:	:
6	:	:	:	:	:	:	:	:	:	:	:	:
7	:	:	:	:	:	:	:	:	:	:	:	:
8	:	:	:	:	:	:	:	:	:	:	:	:
9	:	:	:	:	:	:	:	:	:	:	:	:
10	:	:	:	:	:	:	:	:	:	:	:	:
11	:	:	:	:	:	:	:	:	:	:	:	:
12	:	:	:	:	:	:	:	:	:	:	:	:
13	:	:	:	:	:	:	:	:	:	:	:	:
14	:	:	:	:	:	:	:	:	:	:	:	:
15	:	:	:	:	:	:	:	:	:	:	:	:
16	:	:	:	:	:	:	:	:	:	:	:	:
17	:	:	:	:	:	:	:	:	:	:	:	:
18	:	:	:	:	:	:	:	:	:	:	:	:

CLICK ON RED ALARM ITEM TO DISPLAY INFORMATION IN DETAIL

FIG.125

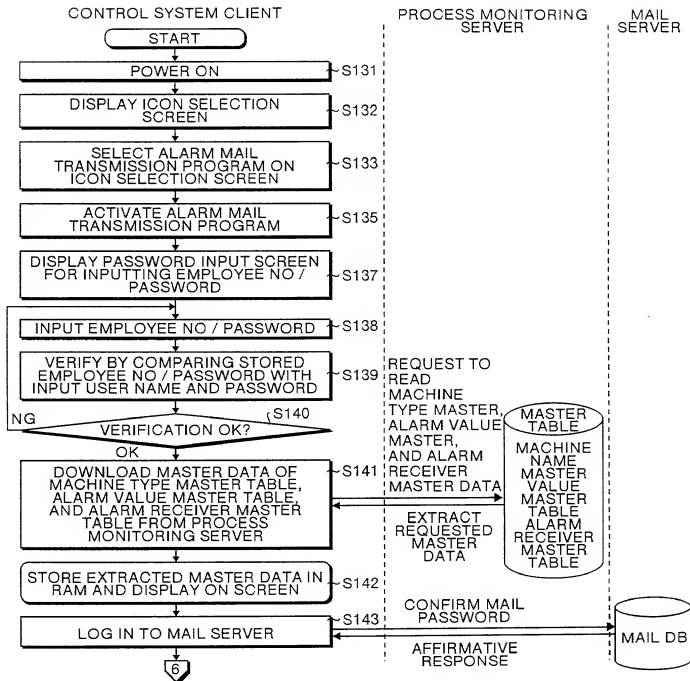


FIG.126

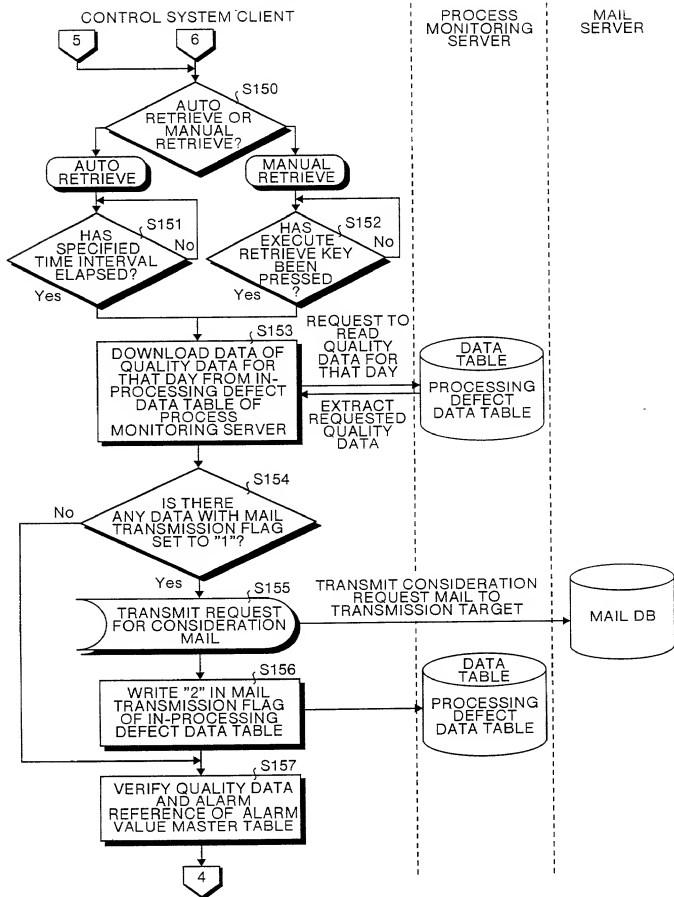


FIG.127

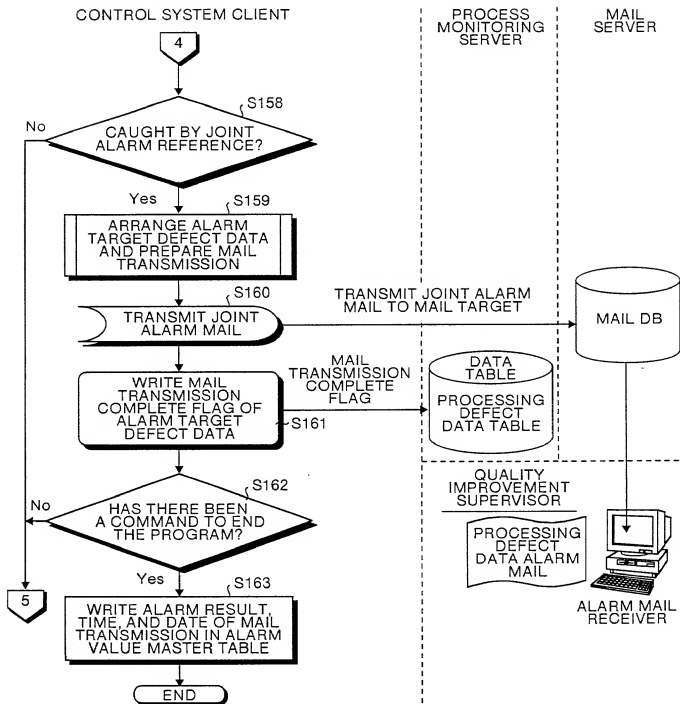


FIG.128

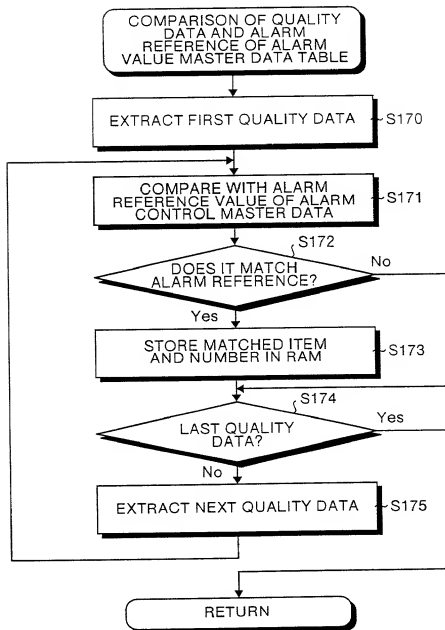
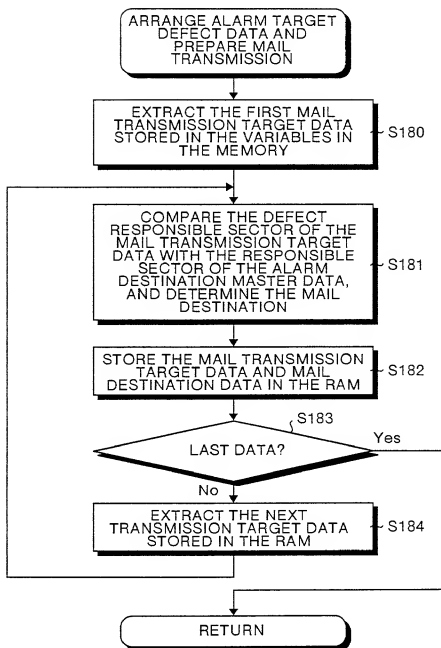


FIG.129



6009 6009

EXISTENCE PERIOD OF MACHINE TYPE DATA	EXECUTE RETRIEVE    UPDATE INTERVAL    1 MINUTE    SET ACTIVATION TIME    [ENDX(EXT)]	TARGET MACHINE TYPE: SingerG1	RETRIEVAL DATE: 000523	RETRIEVE DATE: 000523	RETRIEVE TIME: 10:47:29																																																																																										
PRODUCT FIELD SELECTION BOX  <div style="background-color: black; color: white; padding: 2px;">PPC</div>	ADDRESS :    XXXX    NOTIFICATION OF ALARM STATUS RESULT    XXXX EX) Talsuya Sakiyama/R/RICO    RED:ALARM ITEM 6015    6016    6017    BLUE:ALARM CONDITIONS SET ITEM (NO ALARM)																																																																																														
MACHINE TYPE SELECTION BOX  <div style="background-color: black; color: white; padding: 2px;">Kris/Liac2</div>	ALARM SETTLING CONDITIONS    CONSIDERATION REQUEST    MAIL STATUS    ALARM MAIL ADDRESS																																																																																														
MACHINE TYPE CODE SELECTION BOX  <div style="background-color: black; color: white; padding: 2px;">ALL</div> <div style="background-color: black; color: white; padding: 2px;">A25000</div> <div style="background-color: black; color: white; padding: 2px;">A25009</div> <div style="background-color: black; color: white; padding: 2px;">A25012</div> <div style="background-color: black; color: white; padding: 2px;">A25017</div> <div style="background-color: black; color: white; padding: 2px;">A25019</div> <div style="background-color: black; color: white; padding: 2px;">A25022</div> <div style="background-color: black; color: white; padding: 2px;">A25026</div> <div style="background-color: black; color: white; padding: 2px;">A25057</div> <div style="background-color: black; color: white; padding: 2px;">A25067</div> <div style="background-color: black; color: white; padding: 2px;">A25069</div>	CONTROL SECTION    DEFECTIVE NATURE OF DEFECT1    DEFECT2    DEFECT3    NATURE OF DEFECT    LANKK    RESPONSIBLE SECTION3 CHANGES																																																																																														
MACHINE TYPE CODE SELECTION BOX  <div style="background-color: black; color: white; padding: 2px;">MAY 2000</div> <div style="background-color: black; color: white; padding: 2px;">SUN MON TUE WED THU FRI SAT</div> <div style="background-color: black; color: white; padding: 2px;">30 1 2 3 4 5 6</div> <div style="background-color: black; color: white; padding: 2px;">7 8 9 10 11 12 13</div> <div style="background-color: black; color: white; padding: 2px;">14 15 16 17 18 19 20</div> <div style="background-color: black; color: white; padding: 2px;">21 22 23 24 25 26 27</div> <div style="background-color: black; color: white; padding: 2px;">28 29 30 31 1 2 3</div> <div style="background-color: black; color: white; padding: 2px;">4 5 6 7 8 9 10</div> <div style="background-color: black; color: white; padding: 2px;">TODAY : 00/05/23</div>	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>NO</th> <th>DEFECTIVE ITEM</th> <th>RESPONSIBLE SECTION1</th> <th>RESPONSIBLE SECTION2</th> <th>ALARM VALUE</th> <th>RESULT</th> </tr> </thead> <tbody> <tr><td>1</td><td>CIRCULAR S DEFECT</td><td></td><td></td><td>1*</td><td>0</td></tr> <tr><td>2</td><td>SAFETY STIPULATIONS DEFECTIVE</td><td>TECHNOLOGY</td><td></td><td>1*</td><td>0</td></tr> <tr><td>3</td><td>DEFECTIVE CRIMPING</td><td>TECHNOLOGY</td><td></td><td>1*</td><td>0</td></tr> <tr><td>4</td><td>CIRCULAR S DEFECT</td><td>PARTS</td><td></td><td>1*</td><td>0</td></tr> <tr><td>5</td><td>SEALING DEFECT</td><td>PARTS</td><td></td><td>1*</td><td>0</td></tr> <tr><td>6</td><td>SAFETY STIPULATIONS DEFECTIVE</td><td>PARTS</td><td></td><td>1*</td><td>0</td></tr> <tr><td>7</td><td>ASSEMBLY DEFECT (INCLUDING DEFECT)</td><td>ASSEMBLY</td><td>P-5</td><td>1*</td><td>0</td></tr> <tr><td>8</td><td>ASSEMBLY DEFECT (INCLUDING DEFECT)</td><td>ASSEMBLY</td><td>A-4-AIO</td><td>1*</td><td>0</td></tr> <tr><td>9</td><td>ASSEMBLY DEFECT (INCLUDING DEFECT)</td><td>ASSEMBLY</td><td>L-4-SCANNER</td><td>1*</td><td>0</td></tr> <tr><td>10</td><td>ASSEMBLY DEFECT (INCLUDING DEFECT)</td><td>ASSEMBLY</td><td>N-4-WRITE</td><td>1*</td><td>0</td></tr> <tr><td>11</td><td>ASSEMBLY DEFECT (INCLUDING DEFECT)</td><td>ASSEMBLY</td><td>T-4-FIXING</td><td>1*</td><td>0</td></tr> <tr><td>12</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>13</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>14</td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>					NO	DEFECTIVE ITEM	RESPONSIBLE SECTION1	RESPONSIBLE SECTION2	ALARM VALUE	RESULT	1	CIRCULAR S DEFECT			1*	0	2	SAFETY STIPULATIONS DEFECTIVE	TECHNOLOGY		1*	0	3	DEFECTIVE CRIMPING	TECHNOLOGY		1*	0	4	CIRCULAR S DEFECT	PARTS		1*	0	5	SEALING DEFECT	PARTS		1*	0	6	SAFETY STIPULATIONS DEFECTIVE	PARTS		1*	0	7	ASSEMBLY DEFECT (INCLUDING DEFECT)	ASSEMBLY	P-5	1*	0	8	ASSEMBLY DEFECT (INCLUDING DEFECT)	ASSEMBLY	A-4-AIO	1*	0	9	ASSEMBLY DEFECT (INCLUDING DEFECT)	ASSEMBLY	L-4-SCANNER	1*	0	10	ASSEMBLY DEFECT (INCLUDING DEFECT)	ASSEMBLY	N-4-WRITE	1*	0	11	ASSEMBLY DEFECT (INCLUDING DEFECT)	ASSEMBLY	T-4-FIXING	1*	0	12						13						14					
NO	DEFECTIVE ITEM	RESPONSIBLE SECTION1	RESPONSIBLE SECTION2	ALARM VALUE	RESULT																																																																																										
1	CIRCULAR S DEFECT			1*	0																																																																																										
2	SAFETY STIPULATIONS DEFECTIVE	TECHNOLOGY		1*	0																																																																																										
3	DEFECTIVE CRIMPING	TECHNOLOGY		1*	0																																																																																										
4	CIRCULAR S DEFECT	PARTS		1*	0																																																																																										
5	SEALING DEFECT	PARTS		1*	0																																																																																										
6	SAFETY STIPULATIONS DEFECTIVE	PARTS		1*	0																																																																																										
7	ASSEMBLY DEFECT (INCLUDING DEFECT)	ASSEMBLY	P-5	1*	0																																																																																										
8	ASSEMBLY DEFECT (INCLUDING DEFECT)	ASSEMBLY	A-4-AIO	1*	0																																																																																										
9	ASSEMBLY DEFECT (INCLUDING DEFECT)	ASSEMBLY	L-4-SCANNER	1*	0																																																																																										
10	ASSEMBLY DEFECT (INCLUDING DEFECT)	ASSEMBLY	N-4-WRITE	1*	0																																																																																										
11	ASSEMBLY DEFECT (INCLUDING DEFECT)	ASSEMBLY	T-4-FIXING	1*	0																																																																																										
12																																																																																															
13																																																																																															
14																																																																																															

6009

FIG. 131

6008

6012

6000

EXECUTE RETRIEVE TARGET MACHINE TYPE: Singer C1		UPDATE INTERVAL 1 MINUTE RETRIEVAL DATE: 000523		SET ACTIVATION TIME RETRIEVE DATE: 000523		END(EXIT)	
ADDRESS : EX) Tatsuya Sakiyama/R/RICO		TRANSMIT TEST <input type="checkbox"/>		NOTIFICATION OF ALARM STATUS RESULT XXX RED: ALARM ITEM BLUE: ALARM CONDITIONS SET ITEM (NO ALARM)		RETRIEVE TIME: 10:47:29	
EXISTENCE PERIOD OF MACHINE TYPE DATA PRODUCT FIELD SELECTION BOX PPC		MACHINE TYPE SELECTION BOX Iris/Illuc2 Singer C1		ALARM SETTLING CONDITIONS / RESULT 6015, 6016, 6017		ALARM MAIL ADDRESS	
MACHINE TYPE SELECTION BOX ALL A25000 A25015 A25017 A25019 A25022 A25026 A25029		OCCURRENCE TIME NATURE ORNATURE OF DEFECT 2 DEFECT 3		REPAIR CONTENTS 3		RESPONSIBLE SECTOR	
ASSEMBLY NO. 1 0005-00530 2 0005-00338 3 0005-00455 4 0005-00544		PROCESSING NAME PRODUCTION INITIAL SETTING 01 IMAGE CHECK 01 IMAGE POSITION 01 PRODUCTION INITIAL SETTING 01		DEFECTIVE ITEM DISPLAY DEFECT IMAGE DEFECT IMAGE DEFECT DISPLAY DEFECT		REPAIR CONTENTS 1 EXCHANGE EXCHANGE EXCHANGE REVISION	
NATURE ORNATURE OF DEFECT 1 PAPER END TURN ON PAPER END TURN ON PAPER END TURN ON PAPER END TURN ON		DEFECT 1 A1 VERTICAL STRAPE ABNORMAL IMAGE COULD NOT TURN ON		REPAIR CONTENTS 2 BKT CCD U WRITE U BKT		RESPONSIBLE SECTOR PARTS PARTS PARTS PARTS	
CLICK ON RED ALARM ITEM TO DISPLAY INFORMATION IN DETAIL							

6019

TODAY : 00/05/23



001060-25045960

FIG.132

6009

6008

6012

6001	EXECUTE RETRIEVE TARGET MACHINE TYPE: SingerC1		UPDATE INTERVAL 1 MINUTE		SET ACTIVATION TIME RETRIEVE DATE: 000623		END(EXIT)	
6002	EXISTENCE PERIOD OF MACHINE TYPE DATA PRODUCT FIELD SELECTION BOX PPC		RETRIEVAL DATE: 000623		RETRIEVE TIME: 10:47:29			
6003	MACHINE TYPE SELECTION BOX Iris/Llac2 SingerC1		ADDRESS: EX) Tatsuya Sakiyama/R/RICO		XXXX NOTIFICATION OF ALARM STATUS RESULT XXXX RED: ALARM ITEM BLUE: ALARM CONDITIONS SET ITEM (NO ALARM)			
6004	MACHINE TYPE SELECTION BOX A25000 A25015 A25017 A25019 A25022 A25027 A25029		TRANSMIT TEST <input type="checkbox"/>					
6006	MAY 2000 SUN MON TUE WED THU FRI SAT 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 TODAY : 00/05/23		ALARM SETTLING CONDITIONS / RESULT 6015.		CONSIDERATION REQUEST MAIL STATUS 6016.		ALARM MAIL ADDRESS 6017.	

NO	RESPONSIBLE SECTOR 1	RESPONSIBLE SECTOR 2	RESPONSIBLE SECTOR 3	NOTES_ID	TRANSMISSION CLASSIFICATION
55	ASSEMBLY	T-4FIXING		Tsutomu Ushigome/R/RICO	CC
56	ASSEMBLY	T-4FIXING		Isao Ideno/R/RICO	CC
57	ASSEMBLY	T-4FIXING		Masaaki Taki/R/RICO	CC
58	ASSEMBLY	T-4FIXING		Hiroshi Kurasawa/R/RICO	CC
59	ASSEMBLY	T-4FIXING		Tatsuya Sakiyama/R/RICO	CC
60	ASSEMBLY	T-4FIXING		Noboru Kashima/R/RICO	CC
61	ASSEMBLY	T-4FIXING		/Katsuhiko Inoue/R/RICO	CC
62	ASSEMBLY	T-4FIXING		Toshihiro Ohta/R/RICO	CC
63	TECHNOLOGY			Sohichiroh Fujinaga/R/RICO	CC
64	TECHNOLOGY			Mineyo Takahashi/R/RICO	CC
65	TECHNOLOGY			Hajime Asano/R/RICO	CC
66	.			.	.
67	.			.	.
68	.			.	.
69	.			.	.

6008 6009 6000

FIG.133

6012

6017

EXECUTE RETRIEVE UPDATE INTERVAL 1 MINUTE SET ACTIVATION TIME END(EXIT)																																																													
TARGET MACHINE TYPE: SingerC1	RETRIEVAL DATE: 000523																																																												
RETRIEVE TIME: 10:47:29																																																													
<input type="checkbox"/> TRANSMIT TEST																																																													
XXXX NOTIFICATION OF ALARM STATUS RESULT XXXX RED: ALARM ITEM BLUE: ALARM CONDITIONS SET ITEM (NO ALARM)																																																													
ADDRESS : EX) Tatsuya Sakiyama/R/RICO																																																													
6015. ALARM/SETTING/RES																																																													
6016. ALARM MAIL ADDRESS																																																													
6017.																																																													
TAGRET MACHINE <u>SingerC1</u>																																																													
MAIL SERVER PRO02B/PRO/RICO EX) PRO02B/PRO/RICO																																																													
MAIL FILE <u>MailFujiwara.nsf</u> EX) MailFujiwara.nsf																																																													
SET CONTENTS ARE STORED IN TEXT FILE: [C:\Alarm_Mailini]																																																													
CONNECT TEST SET UP OK CANCEL																																																													
CONTROL SECTOR DEFECT																																																													
<table border="1"> <thead> <tr> <th>NO</th> <th>DEFECT</th> <th>RESPONSIBLE</th> <th>ALARM RESULT</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CIRCU DEFECT</td> <td>LOG</td> <td>1* 0</td> </tr> <tr> <td>2</td> <td>SAFETY DEFECT</td> <td>LOG</td> <td>1* 0</td> </tr> <tr> <td>3</td> <td>DEFECT</td> <td>LOG</td> <td>1* 0</td> </tr> <tr> <td>4</td> <td>CIRCU DEFECT</td> <td>LOG</td> <td>1* 0</td> </tr> <tr> <td>5</td> <td>SEALING DEFECT</td> <td>LOG</td> <td>1* 0</td> </tr> <tr> <td>6</td> <td>SAFETY DEFECT</td> <td>LOG</td> <td>1* 0</td> </tr> <tr> <td>7</td> <td>ASSEMBLY DEFECT (INCLUDING DEFECT)</td> <td>LOG</td> <td>1* 0</td> </tr> <tr> <td>8</td> <td>ASSEMBLY DEFECT (INCLUDING DEFECT)</td> <td>LOG</td> <td>1* 0</td> </tr> <tr> <td>9</td> <td>ASSEMBLY DEFECT (INCLUDING DEFECT)</td> <td>LOG</td> <td>1* 0</td> </tr> <tr> <td>10</td> <td>ASSEMBLY DEFECT (INCLUDING DEFECT)</td> <td>LOG</td> <td>1* 0</td> </tr> <tr> <td>11</td> <td>ASSEMBLY DEFECT (INCLUDING DEFECT)</td> <td>LOG</td> <td>1* 0</td> </tr> <tr> <td>12</td> <td></td> <td></td> <td></td> </tr> <tr> <td>13</td> <td></td> <td></td> <td></td> </tr> <tr> <td>14</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		NO	DEFECT	RESPONSIBLE	ALARM RESULT	1	CIRCU DEFECT	LOG	1* 0	2	SAFETY DEFECT	LOG	1* 0	3	DEFECT	LOG	1* 0	4	CIRCU DEFECT	LOG	1* 0	5	SEALING DEFECT	LOG	1* 0	6	SAFETY DEFECT	LOG	1* 0	7	ASSEMBLY DEFECT (INCLUDING DEFECT)	LOG	1* 0	8	ASSEMBLY DEFECT (INCLUDING DEFECT)	LOG	1* 0	9	ASSEMBLY DEFECT (INCLUDING DEFECT)	LOG	1* 0	10	ASSEMBLY DEFECT (INCLUDING DEFECT)	LOG	1* 0	11	ASSEMBLY DEFECT (INCLUDING DEFECT)	LOG	1* 0	12				13				14			
NO	DEFECT	RESPONSIBLE	ALARM RESULT																																																										
1	CIRCU DEFECT	LOG	1* 0																																																										
2	SAFETY DEFECT	LOG	1* 0																																																										
3	DEFECT	LOG	1* 0																																																										
4	CIRCU DEFECT	LOG	1* 0																																																										
5	SEALING DEFECT	LOG	1* 0																																																										
6	SAFETY DEFECT	LOG	1* 0																																																										
7	ASSEMBLY DEFECT (INCLUDING DEFECT)	LOG	1* 0																																																										
8	ASSEMBLY DEFECT (INCLUDING DEFECT)	LOG	1* 0																																																										
9	ASSEMBLY DEFECT (INCLUDING DEFECT)	LOG	1* 0																																																										
10	ASSEMBLY DEFECT (INCLUDING DEFECT)	LOG	1* 0																																																										
11	ASSEMBLY DEFECT (INCLUDING DEFECT)	LOG	1* 0																																																										
12																																																													
13																																																													
14																																																													
MACHINE TYPE SELECTION BOX A25000 A25015 A25017 A25019 A25022 A25026 A25029																																																													
MACHINE TYPE SELECTION BOX Irisc/Ilac2 SingerC1																																																													
MACHINE TYPE SELECTION BOX PPC																																																													
PRODUCT FIELD PERIOD OF MACHINE TYPE DATA																																																													
TODAY : 00/00/2003																																																													

6022

FIG.134

SINGLE-SHEET DISPLAY OF NATURE OF DEFECT	
DATA ITEM	DATA CONTENTS
RECHECK	
BIRTHDAY	000523
OCCURRENCE TIME	17:05
PROCESSING NAME	VISUAL POSITION 02
DEFECTIVE ITEM	
NATURE OF DEFECT 1	RIGHT ANGLE
NATURE OF DEFECT 2	SECOND MANUAL
NATURE OF DEFECT 3	
REPAIR CONTENTS 1	EXCHANGE
REPAIR CONTENTS 2	REGISTER SP.AFTER
REPAIR CONTENTS 3	
REOCURRENCE	
CAUSE OF DEFECT	
RESPONSIBLE SECTOR 1	TECHNOLOGY
RESPONSIBLE SECTOR 2	
RESPONSIBLE SECTOR 3	
REPAIR DATE	000524
REPAIR TIME	
REPAIR SUPERVISOR	MOCHIDA
RESECT	
CHANGES	
RANK	CHECK DEPENDENCE
REPAIR PREVENTION CONTENTS	
DATE OF COUNTERMEASURE	
TIME OF COUNTERMEASURE	
COUNTERMEASURE SUPERVISOR	

1

30

▶

REGISTER • CLOSE

001000-25045360

FIG.135

123/123

6022

IN-PROCESSING MONITOR: QUALITY PROBLEM CONSIDERATION REQUEST ALARM-XXXX Notes	
<div> <div> <div>FILE(F) EDIT(E) DISPLAY(V) CREATE(C) ACTION(A) HELP(H)</div> <div>Workspace fujiwara-h-ALL DOCUMENT [IN-PROCESSING MONITOR: QUALITY PROBLEM CONSIDERATION REQUEST ALARM] X</div> <div>CREATE NEW MEMO REPLY(YAL) APPEND HISTORY AND REPLAY(ALL) TRANSFER DELETE SHIFT FOLDER(DISPLAY DESTINATION)</div> </div> <div> <div>Hitoshi Fujiwara (PRODUCTION PROJECE HEAD OFFICE IMAGE QUALITY HEAD OFFICE C QUALITY SYSTE PROMOTION OFFICE [RICO Ltd] ) 048-XXX-XXXX (EXTENSION) XXX-XXXX</div> <div>TO : Hitoshi Fujiwara/R/RICO@RICO</div> <div>CC :</div> <div>RE : IN-PROCESSING MONITOR: QUALITY PROBLEM CONSIDERATION REQUEST ALARM [TO RELEVANT DEPARTMENT: PLEASE IMPLEMENT MEASURES IMMEDIATELY]</div> <div>DEFECTIVE MODEL = SingerC1</div> <div>DATE OF DEFECT = 000523/15:50</div> </div> </div>	
DATA CONTENTS	
RECHECK	000523
BIRTHDAY	17:05
OCCURRENCE TIME	PRODUCTION INITIAL SETTING 01
PROCESSING NAME	DISPLAY DEFECT
DEFECTIVE ITEM	PAPER END COULD NOT TURN ON
NATURE OF DEFECT 1	
NATURE OF DEFECT 2	
NATURE OF DEFECT 3	
NATURE OF REPAIR 1	EXCHANGE
NATURE OF REPAIR 2	BKT
NATURE OF REPAIR 3	
REOCCURRENCE	
CAUSE OF DEFECT	PARTS
RESPONSIBLE SECTOR 1	
RESPONSIBLE SECTOR 2	
RESPONSIBLE SECTOR 3	
REPAIR DATE	000523
REPAIR TIME	
REPAIR SUPERVISOR	HASEGAWA
RESECT	
CHANGES	CHECK DEPENDENCE
RANK	
REPAIR PREVENTION CONTENTS	
DATE OF COUNTERMEASURE	
TIME OF COUNTERMEASURE	
COUNTERMEASURE SUPERVISOR	

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF: Hitoshi FUJIWARA, et al.

FILING DATE: Herewith

FOR: PRODUCTION MANAGEMENT SYSTEM, CLIENT IN THE PRODUCTION MANAGEMENT SYSTEM,  
PRODUCTION MANAGEMENT METHOD IN THE PRODUCTION MANAGEMENT SYSTEM, DATA  
RETRIEVAL METHOD IN THE PRODUCTION MANAGEMENT SYSTEM, AND COMPUTER  
PRODUCT

**LIST OF INVENTORS' NAMES AND ADDRESSES**

ASSISTANT COMMISSIONER FOR PATENTS  
WASHINGTON, D.C. 20231

SIR:

Listed below are the names and addresses of the inventors for the above-identified patent application.

Hitoshi FUJIWARA	Tokyo, Japan
Yasuhiro YAMAGUCHI	Tokyo, Japan
Hidenori UMEDA	Tokyo, Japan
Tatsuya SAKIYAMA	Tokyo, Japan
Yuichi JIBIKI	Tokyo, Japan

A declaration containing all the necessary information will be submitted at a later date.

Respectfully Submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

Marvin J. Spivak

Registration No. 24,913

**C. Irvin McClelland**

Registration Number 21,124



**22850**

Tel. (703) 413-3000

Fax. (703) 413-2220

(OSMMN 11/98)